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ABSTRACT

The study summarized in this report investigated the current nature of California's high school curriculum, how it is determined, and how it differs for different groups of students. Data were gathered from 26 representative high schools. Chapter 1 describes the six levels of curricular policy and decision making in California and the decisions made at each level. It also portrays characteristics of schools statewide and in the study. Chapter 2 addresses graduation and proficiency requirements, which are shown to have clear effects on particular cohorts of students but which do not standardize courses of study. The courses of study of three students in one school are described to demonstrate the very different paths students can pursue. Study schools are compared in academic, nonacademic, and elective course requirements. Chapter 3 describes the curriculum structure at each school which differentiates students into various instructional cohorts, each receiving a different curriculum determined by the department-level tracking system. Sample curriculum maps from study schools are analyzed. Chapter 4 outlines student placement and monitoring processes, showing how students receive varying amounts of support and examining the complexity and problems of monitoring student progress. The fifth and final chapter compares the effects of the policies and practices found in terms of the academic programs available to cohorts of students. Appendices contain the complete list of study topics and sample student programs. (CMG)

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California High School

Curriculum Study: Paths Through High School

Prepared for
California State Department of Education

UD023672

EXECUTIVE SUMMARY CURRICULUM STUDY

In 1981, the California State Department of Education commissioned a study of high school curriculum in response to growing concerns on the part of educators, employers, parents, and the general public about the nature of high school education. Falling test scores and increasing concern on the part of employers about the skills of recent high school graduates had led to complaints that high school students were not receiving adequate preparation for either college or employment. The study was given further impetus by expectations of a movement to strengthen graduation requirements and the general nature of the high school curriculum. In fact, such changes were effected in 1983 by the passage of SB 813 (also known as the Hughes-Hart Educational Reform Act). This act increased the graduation requirements by specifying the number of courses that students must complete. The new requirements include:

Three one-year courses in English;

Two one-year courses in mathematics;

Two one-year courses in science, including biological and physical science;

Three one-year courses in social studies, including United States history and geography; and American government, civics, and economics;

One one-year course in fine arts or foreign language;

Two one-year courses in physical education unless the pupil has been specially exempted.

The effect of such changes can be easily seen. Students will be taking more classes, requiring more teachers' time, and needing more materials ranging from lab equipment to textbooks. But numerous questions remain about the nature of a high school education. What, for example, should be covered in a "course" in mathematics or English? How much academic work should be required and how many electives should be allowed? What sort of education, in other words, should a high school diploma represent?

In light of questions such as these, the Paths study was designed to describe the current nature of the high school curriculum, how it is determined, and how it differs for different groups of students. The study reviewed 26 schools which had been selected to represent the wide diversity of high school students in California. Included in the study were large, small, and medium-size schools in urban, rural, and suburban areas with various mixes of ethnicity, achievement levels, and income. During the study, small teams of researchers visited schools for two- to three-day

periods. The researchers interviewed administrators, counselors, and department heads in order to collect information about:

The decision-making processes used to determine what courses are taught to which students, and the content, pace, and standards of each course;

How courses are organized into programs of study;

How students are assigned to various skill groups or "tracks";

How the curriculum varies from track to track.

The following discussion summarizes the major findings of the Paths study. The findings are discussed in terms of 1) curricular decision-making, 2) graduation requirements, 3) curricular structure, 4) student placement and monitoring, and 5) comparing curriculum structures. Finally, the discussion explores some of the implications of the findings for the future of the high school curriculum in California.

Curricular Decision-Making

A number of factors determine the curriculum offered in California high schools. Included among these factors are the following:

General State-mandated requirements for graduation from high school;

State-mandated requirements for local basic skills proficiency test;

University of California requirements for admission (called "a-f" requirements after the list which defines them);

District graduation requirements and proficiency standards;

District and school support and finances;

Individual subject area department standards, course sequences, and administrative policies;

Students' needs and interests;

Teachers' expectations, standards, qualifications, and interests.

As the locus of responsibility shifts from the state to the district to the department to the teacher, responsibilities become increasingly specific. For example, while statewide requirements for graduation are general, it is the responsibility of the individual departments to design the content of such courses, and it is the teacher who actually determines how that content is conveyed, at what pace, and what the standards shall be for determining

who has mastered the material. Thus, the state Education Code sets out general requirements; the school district sets graduation requirements and proficiency standards, as well as policies regarding the length of class periods and the school day; the individual departments design courses and assign teachers; and the teachers decide how to present the material, what homework and grading policies should be, and assess students' mastery of the material. An important implication of this finding is that, at least for high schools, it is department chairs and teachers rather than principals who are central to curriculum development. Finally, an additional factor affecting the curriculum is the admission requirements for the University of California and the California State Universities and Colleges. All of the schools surveyed offered courses which fulfilled these requirements.

The distribution of responsibility described above is, of course, only a general picture. Some districts work with schools to coordinate courses, content, design of course sequences, and testing. Others leave these matters to the discretion of the school and their departments. In most cases, however, almost all responsibility for course content, criteria for student placement, course articulation, grading standards, and teacher assignments resides at the individual departments. In larger schools, particularly, most authority for day-to-day operations is vested in department chairs and vice-principals. The principals of the schools surveyed, with responsibility for an average of 11 departments, function primarily as administrators of large and complex organizations, with little direct involvement in curricular planning.

As a result of the considerable discretion which departments and teachers have in designing courses and presenting course material, the high school curriculum varies greatly from district to district. Such variation occurs both in the courses offered and in the material covered. The greatest consistency in course content across all schools occurred among the courses which had been designed to fulfill the UC requirements. The greatest variation occurred in the more general and remedial courses.

Two additional forces affecting curriculum have been the introduction of the state-mandated basic skills proficiency tests and the cutbacks in resources resulting from Proposition 13. As a result of the proficiency requirements, all schools have had to do at least some shifting of resources towards remedial classes. In addition to the pressures created by the proficiency tests, the budget reductions caused by the passage of Proposition 13 have affected resources available to schools. Prominent among the cutbacks are reductions in available textbooks, course materials, and summer school sessions. Because schools are not able to replace or update textbooks, many report that upper track students must use old textbooks, particularly in history and science. In an attempt to reduce textbook loss, some schools no longer allow students in the lower tracks to take their books home with them. Instead, teachers may use dittoed homework assignments and have students do their reading during class. This latter practice then reduces the amount of time available for instruction and, as a result, the amount of material that can be covered in the course. At the same time, schools which have had to eliminate summer sessions face increased class

sizes (particularly in required courses such as American History/Government and Health) and a concomitant increase in the need for textbooks.

Graduation Requirements

Apart from the state-mandated courses (in which content is not usually specified) graduation requirements are determined locally. As a result, specific courses required for graduation and the content of those courses vary widely throughout the state. On the whole, districts require the greatest number of units in English, followed by social studies, physical education, mathematics, and science. No school surveyed required a foreign language. There is, furthermore, a wide discrepancy between the courses required in English and social studies (an average of approximately three years each) and those required in mathematics and science (an average of approximately one year each). Thus, while students are frequently required to study English and social studies during three of their four years in high school, they may often study no more than one year of mathematics or science.

In all, less than half (40 percent) of the units required for graduation were specified academic courses such as English, math, science, and American history and government. The remainder of the required units were comprised of non-academic courses such as physical education and driver's education and electives which may be academic or not, according to each student's choice.

For lower track students who fail state-mandated basic skills proficiency tests, additional courses are assigned to help them pass the tests. In order to provide such courses, most schools have had to reallocate at least some of their resources towards the lower track, remedial courses. For the most part, such reallocation has resulted in schools' offering fewer electives rather than reducing advanced courses in basic subjects such as English, math, and science.

It is difficult to determine the extent to which the proficiency tests act as a barrier to graduation. By the time students reach the last half of their senior year and are eligible to graduate, almost all of them have passed the proficiency exams. Available statistics, however, represent only those seniors who do not graduate because they have failed to complete course work or proficiency tests or both. These data do not take into account those who have dropped out before reaching their senior year--the students most likely to have encountered repeated failure in the proficiency tests.

Graduation requirements, then, identify the minimum courses that must be taken, while proficiency requirements define the minimum skills that must be demonstrated in order to graduate from high school. In terms of specific courses and course content defined by local districts and school boards, there is wide variation throughout the state in all areas of study. The greatest number of units are required in English, the fewest in science. Where schools have to shift resources to meet the needs of students who have failed proficiency tests, such shifts have usually resulted in reduced coursework in English, math, and science. Nevertheless, all the schools

reviewed continue to offer full courses of study to prepare students for admission to the University of California.

Curricular Structure

All of the schools surveyed used some sort of "tracking" system--the grouping of students according to skills and aspirations in order to provide instruction which best meets each student's needs. In general, these tracks include a lower track, a middle or "general" track, an advanced, college-prep track, and a "gifted" or honors track. The lower track (serving between 10 and 20 percent of the high school population) concentrates on providing remedial courses to help students pass proficiency exams. These courses are often tailored to each student's identified problems on the proficiency tests. The honors track (serving approximately 10 percent of the students) and a more general college-prep track (serving up to 35 percent of the students) provide courses which meet the University of California's "a-f" requirements. The courses include advanced work (usually in coordinated, traditional sequences) in English, mathematics, and science. The rest of the students take courses in a middle or "general" track. These are students who have passed or are expected to pass their proficiency exams but who have not expressed an intention to go on to higher education. The courses offered for these students may prepare them for the more advanced upper level courses (as in the case of a student completing a general math course and enrolling in algebra), but counselors and teachers report comparatively little of such upward movement between the tracks.

Students are generally assigned to the tracks based on criteria such as past performance, test scores, and teacher recommendations. In some cases, assignments are made on the basis of general skills such as reading levels. In others, such as some science tracks, placement may be made on the basis of skills necessary to the study, such as the ability to do equations. Placement is not permanent, and students are generally free to choose courses in other tracks. However, school staff report that students generally remain in the tracks to which they are originally assigned.

Student Placement and Monitoring

The classes which students choose, the ways in which they choose them, and the extent to which they receive counseling, information, and support from their schools are all largely functions of the tracks to which they have been assigned. The initial placement in a track and the suggestions for courses are mainly the responsibility of the school counselors. However, the amount of individual attention each student receives varies depending on the number of students that each counselor is responsible for. In the schools surveyed, the counselor/student ratio ranged from 1 to 239 to 1 to 540. The average ratio was 1 to 369, with one school reporting having no counselors at all. Such heavy workloads severely limit the amount of time any school staff member devotes exclusively to assessing student needs and planning appropriate programs of study. In fact, counselors reported that they spent

the most time with lower and upper track students. Lower track students come to the attention of counselors when they fail proficiency exams or fall behind in completing graduation requirements. Upper track, college-bound students, on the other hand, need information about courses, colleges, and scholarships. Too, a school's reputation is based largely on the number of students who enter the University of California and other four-year colleges, so that upper track students receive particular attention. Counselors spend the least amount of time with lower and middle track students who present no immediate problems nor request the kind of information provided to college-bound students. Yet these are students who are often in most need of information regarding jobs, training, or further education.

The heavy workload assigned to most counselors affects not only the amount of time they can spend working with students, but the quality of the information they provide as well. Some schools assign counselors to work with individual subject area departments, to sit in on faculty meetings and discuss course content. In many cases, however, counselors must rely on the course catalogs for their knowledge of what the school offers. At the same time, counselors must spend large amounts of time monitoring student progress in completing proficiency exams and courses required for graduation. Although some schools have begun to use computers to perform such monitoring, most counselors must still devote much of their time to this task. These extensive, largely clerical duties reduce the time counselors would spend learning about the school's offerings, planning appropriate student programs, gathering information about post-high school opportunities, and working with students.

Comparing Curriculum Structures

As the time that counselors spend with students depends largely on the tracks to which students are assigned, so too does the education which the students receive. The California high school diploma does not represent a single core of knowledge or experience. The sources of difference are numerous: different incentives, different courses and content, lack of adequate textbooks for lower track students, different access to higher level courses, and different sequences of courses.

Generally, students tend to complete the courses they need for whatever they intend to do after high school. Those who do not plan further education take the minimum number of academic courses necessary to graduate. Even students planning to attend the University of California or other four-year colleges tend to take only the courses required for admission. However, the UC requirements do provide sufficient incentive for the schools to offer--and for students to take--courses which provide a very different education from that acquired by non-college track students. Where lower track students would complete a one-year math requirement in a general course such as those entitled "Basic Math" or "High School Math," college-bound students would fulfill the same requirement with a course in algebra. Similarly, a one-year science requirement might be fulfilled by either a basic, general course such as "Earth Science" or by a college-prep Biology course.

On the one hand, such differentiation of courses enables schools to provide instruction appropriate to students of different skill levels. On the other, it has produced a divided curriculum in which students in lower tracks rarely enroll in more advanced coursework. This difference is aggravated by the lack of adequate textbooks for lower track students. Teachers complain that there are too few textbooks available for students reading below grade level. The problem is further aggravated where lower track students are not allowed to take their textbooks home with them. Homework then becomes classwork which in turn reduces the amount of material that can be covered in the course.

An additional barrier to lower and some general track students is the lack of access to more advanced courses. Frequently, these courses require skills which lower track students are not taught. For example, a student in a lower track math course would have difficulty acquiring the skills necessary to enroll in and complete the algebra which is a prerequisite to chemistry. Furthermore, course sequences are shorter in the lower tracks, so that a one-year general math course does not develop mathematical skills as does the algebra-geometry-trigonometry sequence. In some cases, course sequences for general or lower track students do not extend through a full, four-year program.

Summary

The information collected during the study conveys a picture of students who may attend the same school but who come away with very different educational experiences. Included in the differences are the attention they receive from counselors, the subjects they study, the textbooks they read, the expectations their teachers have of them, the amount of homework they do, even the amount of time they spend in class.

The high school diploma does not represent a "core curriculum," even in the most general sense, of knowledge studied or learned. On the contrary, the education students receive is, in large part, determined by the track to which they are assigned when they enter high school. Those most gravely affected by this problem are students in the general or lower tracks of California high schools who present no immediate "problems" to the school. They have passed their proficiency exams and are progressing through their planned programs more or less on schedule. Because they are expected to graduate, they don't require special classes or counseling. Because they don't expect to go to college, they don't request information about colleges or scholarships. These students generally study the minimum necessary to pass their proficiency exams and complete their graduation requirements. They therefore receive little attention from their counselors. Teachers assign less homework, courses cover less material, and some students may not even be allowed to take their textbooks home. For the most part, they do not progress to more advanced coursework nor do they receive extensive counseling about post-high school opportunities. Furthermore, this problem is not confined to students in the middle or lower tracks. Even students in the upper tracks often take only those courses required for admission to college. Once these sequences are completed, they tend to take fewer academic electives than are possible.

In specifying the number of years of study required for each subject, the revisions contained in SB 613 represent the beginning of an effort to redefine the nature of the high school education. But even these requirements address only the time spent in class and not the substance of the courses. The Paths study has demonstrated how courses in a single field (e.g., mathematics) may cover vastly different areas of study, and how even classes with similar titles (e.g., American government) may vary widely in the breadth and depth with which they approach a subject.

If a high school diploma is to represent more than a record of attendance, it is important to develop a more comprehensive curriculum for all students. This is by no means a simple task. While continuing to address the diverse skills and needs of the students enrolled, the curriculum must be modified to include a central core of knowledge in all tracks. At the same time, all course sequences must be better integrated to ensure a full, four-year program of progressively more advanced work. It is essential, too, that these courses be supported with adequate textbooks and materials. This involves providing students with up-to-date textbooks appropriate to their reading levels, as well as with sufficient instructional materials. Finally, the efforts of the entire school staff, from administrators and counselors to teachers and department chairs, must be directed to increasing their expectations of students rather than accepting a bare minimum course of study. Only if we require more of our students, will we teach our students to require more of themselves.

INTRODUCTION

This report summarizes the major findings of a study of twenty-six California high schools called Paths Through High School. It has been conducted for the Office of Program Evaluation and Research, State Department of Education. The study describes the characteristics of high school curriculum across the state. This task grew out of a general atmosphere of concern about curriculum and declining achievement scores in California high schools. There is a broad public perception that high school graduates are insufficiently prepared for either work or higher education. In addition, there are specific concerns about the secondary curriculum as it is affected by declining financial resources, accountability pressures of proficiency assessment, and pressures to serve growing linguistic and cultural minority populations.

To respond to these concerns, Department of Education and Stanford University researchers planned and conducted case studies of twenty-six California high schools during the spring of the 1981-82 school year. Interviewers spent several days at each school collecting both qualitative and quantitative information. They interviewed principals, vice principals for instruction, counselors, and department chairs in the English, mathematics, and science departments. In addition, data from statewide sources and from materials and records at the schools were added to the case reports. The intention was to use complementary sources of data to develop a convergent picture of the current curriculum and the forces which affect it. The case studies, the statewide data, school documents, and interviews provide a rich foundation from which to investigate particular issues of secondary education.

Background Conditions of California's Secondary Education System

California's educational environment has changed and continues to change dramatically. Enrollments peaked and then declined, revenues have been cut back and equalized, and minority and special populations have put increasing pressure on schools to accommodate their needs. In the midst of this retrenchment, public concern is growing about the quality of secondary education. Pressure for higher educational standards and outcomes of school comes at a time when fiscal and demographic pressures are straining school resources and flexibility.

The current political climate calling for higher standards and increased achievement derives support from both employers and higher education institutions. The National Commission on Excellence in Education, in its report "A Nation at Risk: The Imperative for Educational Reform," found that:

Business and military leaders complain that they are required to spend millions of dollars on costly remedial education and training programs in such basic skills as reading, writing, spelling, and computation.

The higher education systems in California have increased or are planning to increase entrance requirements in order to reduce the remedial courses needed for entering students. In addition, the UC system has gradually increased specification of the course content which will be

accepted to fulfill entrance requirements. This reverses the trend of the 1970s in which many different courses were approved for the college preparatory curriculum. When school enrollment peaked, the curriculum expanded to include new areas of content such as psychology, political science, and oceanography. Such courses are no longer accepted for entrance requirements. Instead, higher-order reading, writing, and mathematics skills are being emphasized.

Cultural and linguistic minorities are becoming an increasing proportion of the school population, placing additional pressure on curriculum. Minority student school success rates are significantly less than that of whites. The rate at which the largest and fastest growing minority group, Hispanics, complete high school is about half that of non-Hispanics. Their entry into postsecondary institutions has not increased substantially over the past decade, nor have they gained access to well paid employment. This is particularly troublesome since minority group students are projected to constitute the majority of the student population in public schools within the next two decades.

The enactment of Assembly Bill 3408 (1976) represented the California Legislature's response to a growing public demand for increased emphasis on the basic skills in public education. The law required school districts to establish proficiency standards for graduation in the areas of reading, writing, and computation. However, broad legislative policies are difficult to implement and tend to have unforeseen side effects. For instance, there has been growing concern that minimum competency testing and the consequent emphasis on basic skills have eroded the curriculum, edging out more advanced courses and higher order skill development. Also, a previous state study, "Pupil Proficiency Assessment in California, 1981 Status Report," found that as many students did not graduate because they failed to meet graduation requirements as did those who failed proficiency tests. Questions which naturally arise from these findings are:

- Why are students failing to complete a course of study if they are passing proficiency tests?
- What are the barriers to completing a successful path of coursework through high school?

Study Focus and Content

This project was designed to provide data for policy makers concerned about high school quality. Various policy changes are being considered in an attempt to increase high school achievement. Rather than searching for the "best" classroom practices or testing competing theories of instruction, the principle task has been to develop a comprehensive and thorough understanding of the major, policy-amenable forces affecting course enrollment in high schools. In addition, data were collected to address specific areas of concern, such as the availability of advanced level courses, and the effect of proficiency assessment on the curriculum. The intention was to provide a data base which would facilitate answering questions about the California high school curriculum and thereby to enlighten state and local policy making.

This study attempts to describe the various paths of courses which students take through academic offerings in the high school curriculum--and why. The resulting picture fills a gap in the current literature and knowledge about high schools and curriculum. Curriculum research usually considers the way a teacher presents material at the classroom level. However, this level of inquiry requires looking into classrooms over time, which is virtually impossible in a large-scale study designed to generalize across high schools. This study's major features are:

- The focus on courses as the unit of curriculum
- Investigation of decision making processes which determine what courses will be taught to whom, and the content, pace, and standards set for students
- The organization of courses into whole programs of study

Background demographic, organizational, historical, and impressionistic data were gathered in each school studied. Table 1.7 in Chapter 1 contains comparative information about the 26 case study schools. Detailed descriptions of graduation requirements were obtained in order to demonstrate variations among schools. School staffs were asked about the effects of proficiency assessment on curricular offerings. A complete list of topics covered in the data collection is provided in Appendix A.

School administrators and counselors were asked for the following information:

- Managerial Information--descriptive data on schools
 - Enrollment and grade level structure
 - Special funding sources (special education, school improvement)
 - Attendance rates (daily excused and unexcused absences, class cuts)
 - Graduation rates (nongraduate breakdown by course requirements and proficiency test failures)
 - Proficiency testing results for classes of 1981-82
 - Dropout rate and definition
 - Class size (high, low, average)
 - Minutes per class period
 - Number of class periods taken by students (average, minimum, maximum)
 - Departmental structure
 - Characteristics of student population (mobility, aspirations, socioeconomic status, etc.)
- Graduation requirements
 - Courses required for graduation by subject area
 - Specificity of course requirements by track
 - Definition of unit used for course credit

- Postgraduation data

- Sources and information available about student plans or actual destinations
- Proportions of students attending colleges (UC and others) or entering jobs
- Length of time students are followed
- Use of information about student destinations in curriculum planning and counseling

- Curriculum Policy and Management

- Descriptions of school policies and practices for determining the following: which courses are offered; determination of course content; teacher assignment and qualifications for courses taught; course enrollment (tracking); student placement; course articulation; monitoring student progress in proficiency and graduation requirements; grading standards; student work assignments
- External factors affecting curriculum and instruction
- Effects of proficiency assessment

- Curriculum Differentiation

- Number of tracks
- For each track, the name or description of destination (e.g., college prep); percent of student body in each track; typical course sequences in track.
- Sequential characteristics of tracks and courses
- Articulation within departments
- Basis for grouping or not grouping students

- Departmental Organization

- Subject areas represented
- FTEs (fulltime equivalent employees)
- Class sizes
- Number of course titles offered, sections, and students enrolled

- Detailed descriptions of English, math, and science departments

- Content areas included
- Organizational structure
- Proficiency assessment, instruction, and remediation
- Department approach to providing advanced level coursework
- Policies, procedures, and decision making processes used with regard to: course offerings and content; teacher assignment; student placement; articulation and coordination among courses; UC a-f requirements; texts used; course rigor; grading standards; homework.

- Student access to the curriculum

- Process by which students are placed in courses
- When and how students receive information about courses
- Counselor knowledge about courses and students
- Student mobility between tracks

To determine specific course policies, only three departments were studied in depth: English, math, and science. The focus on these three departments simply reflects limited study resources and the prevalent public concerns and should not be seen as a bias toward these areas as being inherently more important than other subject areas.

Study Design and Methodology

The project consists of 26 structured case studies conducted throughout California during the 1981-82 school year. Using statewide data sources, schools were selected which represent the diversity of schools across the state and thereby allow some generalization of findings beyond the schools studied. By structuring the case studies, some comparable survey-type data were obtained as well as narratives and perceptions from data collectors. The case study report format is available on request. The strengths in this design lie in the ability to describe the complexity of practices in schools from the local perspective and to compare findings across very different schools. The limitations of the study stem from reliance on interviews rather than observing actual school practices.

Organization of the Report

To respond to the policy concerns about academic achievement, the report is organized to build a progressively more detailed picture of curricular policies and practices.

Chapter 1 describes the levels of curricular policy and decision making in California's educational system. It describes the decisions that are made at each level. It also portrays characteristics of the schools across the state and in the Paths study.

Chapter 2 addresses the major state-level policies of graduation and proficiency requirements. These have clear effects on particular cohorts of students, but do not standardize programs of study. Students can therefore pursue very different paths through high school, as demonstrated by the courses of study of three students in one Paths school. Study schools are compared in academic, nonacademic and elective course requirements.

Chapter 3 describes the curriculum structure developed at each school which differentiates students into various instructional cohorts. Each cohort receives a different curriculum, determined by the department-level tracking system. Sample curriculum maps from study schools are analyzed.

Chapter 4 outlines student placement and monitoring processes. Students have varying amounts of support in navigating a successful or optimal path through the curriculum. The complexity and problems of monitoring student progress through high school are examined.

In Chapter 5, the effects of the policies and practices found are compared in terms of the academic programs available to cohorts of students.

The appendices contain the complete list of study topics and sample student programs of study.

Chapter 1

CURRICULAR DECISION MAKING IN CALIFORNIA SECONDARY EDUCATION

Chapter Summary

Policies and practices which govern secondary curriculum are determined and carried out at six levels of California's educational system. The curriculum which students receive depends on planning and coordination by individual teachers, at the department level within schools, by schools, districts, and counties, and at the state level. Implementation of state-level policies are mediated by each intermediate organizational level until ultimately carried out by individual teachers. This hierarchical structure affects the consistency over secondary curriculum across the state.

At the state level, the legislated curricular policies investigated in this study were course of study and proficiency requirements for graduation described in Chapter 2. College entrance requirements, though not legislated, were found to have very important curricular impact statewide. Their pervasive effect on the college preparatory curriculum and placement practices was evident in all schools studied.

Vocational programs are primarily provided at the county level. Districts set graduation requirements, lists of courses offered, length of school day and class periods. Schools determine course schedules and teacher assignments. Student monitoring and initial track placement are also handled at the school level.

Major decisions about content and standards were found to be delegated to departments within schools. Principals had little direct involvement in curricular planning and relied on department chairs or other personnel for curriculum management. Principals in the schools studied administered complex organizations with an average of 11 departments per school, plus special programs. In addition, principals were found to have been in their schools a significantly shorter time than other staff members. These findings raise questions about extending the concept of principals as "instructional leaders" from effective elementary schools research to the high school.

Subject area departments determine which specific courses are offered, the content, scope, and level of courses, articulation, sequencing, and specific teacher assignments. Individual teachers within departments were found to have widely varying autonomy over courses and content, but in all schools they had final responsibility for setting standards, assignments, and homework. Teachers plan their courses within the constraints set at other levels (e.g., requirement, resources, time) and within the departmental agreements about content and sequences. Teachers reported adjusting their courses and expectations according to the students enrolled in each class.

Maintaining consistent standards and planning sequences of content and courses were reported to be difficult in schools where student transiency and absence rates are high.

California's 780 comprehensive high schools vary enormously in size, overall achievement and demographics, and the types of students served within each school. The Paths schools were selected to capture this extreme diversity and provide a picture of the differences in schools which face state-level policy makers. This diversity and the resulting variation in local curricular policies and practices increase the difficulty of implementing state-level curricular policies.

Secondary Curricular Decision Levels

Curriculum, or the content of schooling, is influenced at many levels of the educational system. Decisions made at each level are not as distinctly separate.

- The decisions evolve as they flow from level to level, gaining specificity until actually enacted in each classroom by each teacher.
- Managerial strategies and levels at which policies and practices are determined were found to differ across the study schools.

These organizational levels of control determine and manage delivery of curriculum in secondary schools across the state. Federal and state policies directed toward lower levels are mediated by the policies at each intermediate level. This chapter describes the organizational hierarchy which determines what is taught to whom in California high schools, and the differences found in the Paths schools regarding these decision levels.

County-level policies were not specifically investigated in this study, but vocational education was often found to be provided through regional occupational centers (ROCs) at the county level. The data indicate that comprehensive high schools do not offer fully articulated job entry, vocational programs. These programs are primarily provided through ROCs, community colleges, or other programs outside of the public high schools. In California, the availability of vocational training at the ROCs and community colleges relieves the comprehensive high schools of the financial burden of providing a wide array of specific vocational training programs. School administrators reported that they were not able to provide up-to-date equipment and instruction in vocational courses, but they were able to prepare students for programs conducted by other public or private agencies.

CURRICULAR POLICY MAKING AT THE STATE LEVEL

Curricular policies which are enacted at the state level face two major realities of the California public school system.

- A history of local control and autonomy
- Extreme differences of size, wealth, and other school and district characteristics

Historically, curricular policies and practices have been local responsibilities. Although control of the state's school finances and teacher credentialing has become increasingly centralized issues of curriculum and teaching have remained decentralized at the district, school, and teacher level of jurisdiction. California's school districts, perhaps more so than other states, have had local autonomy over curricular choices and instructional practices.

Some of the most important differences among schools and districts are described in this chapter. At each organizational or policy level the variation statewide and within the Paths sample is discussed with regard to effect on curriculum policy making. The combined effects of local autonomy and differences counteract most moves towards statewide consistency of secondary curriculum.

Statewide Policies

The two legislated policies investigated in this study are the course of study and proficiency requirements for graduation. Local implementations of these requirements are described in Chapter 2. They were found to have little capacity to ensure a common core of curricular experience across schools and students. They only define certain minimal expectations.

As described in Chapter 3, courses are planned by teachers within their departments for several achievement cohorts. The number of cohorts was found to vary across the study schools. Courses were planned for as few as three or as many as five achievement cohorts. In addition, the number of courses offered in academic areas for each cohort varied across the schools. The number of sequentially planned math, English and science courses available to students depended on their relative achievement levels and the course planning process in each department.

The notable exception to this variation in course offerings was found within sequences planned for the highest achieving group, those students who intended to apply to the University of California or a private university. All schools in the study reportedly provide courses meeting University of California A-F requirements, creating the most consistent set of courses for a single cohort found across the study schools. All department chairs reported planning the highest level sequences to meet A-F requirements. Much more variation was found in course titles and sequences of courses provided for middle and lower track students. Local factors were cited as influencing the planning of courses and sequences for these students, which resulted in unique configurations of courses in each school.

Counseling and placement were also oriented toward college entrance requirements. Students' programs of study were planned to meet their aspirations for postsecondary education. Counselors were all familiar with UC requirements and courses fulfilling them, and used these to help the highest achieving students design their programs of study. This contrasts particularly with the programs for lower achieving students, which are described in subsequent chapters.

Statewide Characteristics of High Schools

According to a statewide data base -- California Basic Educational Data System (CBEDS) -- there were about 280,000 twelfth graders in public high schools in 1981-82. The breakdown of schools in which these students were enrolled is shown in Table 1.1.

Table 1.1
TWELFTH GRADE STUDENT DISTRIBUTION BY TYPE OF PUBLIC SCHOOL

	12th grade enrollment
780 comprehensive high schools	260,000
637 special schools with grade 11 or 12	
155 county-run schools (juvenile court, etc)	1,500
424 others, (Continuation, alternative)	20,000
58 ROC or ROP (36,610 enrollment is included in other categories)	
1,417 total schools with 12th grade enrollment	281,500

Source: CBEDS

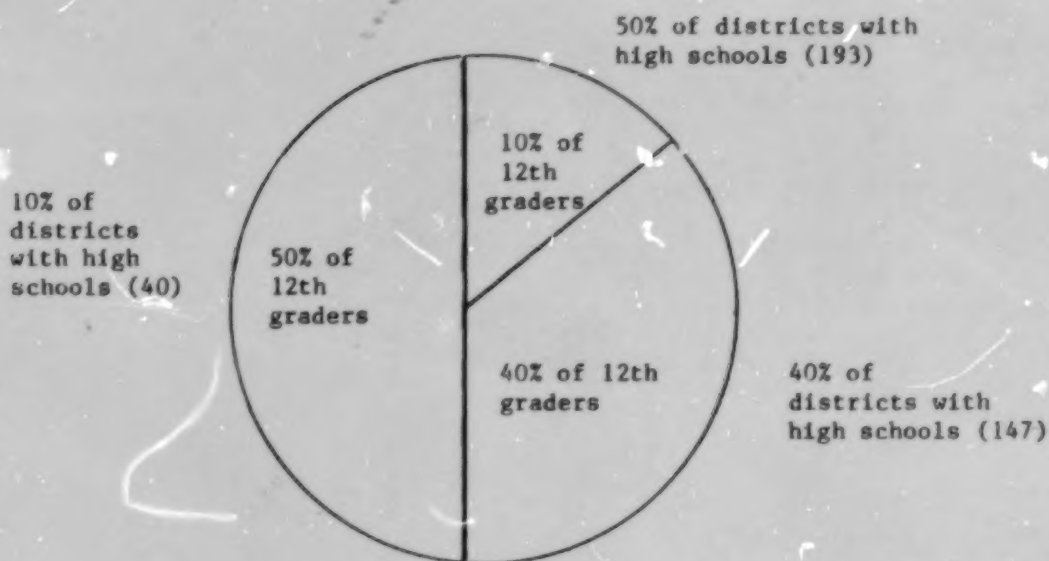
The impetus of this study relates most directly to what is known as public comprehensive high schools--those included in CAP. Paths case study schools were selected only within the 780 CAP high schools for three reasons:

- These schools enroll the vast majority of students (93 percent).
- CAP provides important information for selecting and describing schools, particularly basic academic achievement data.
- The non-CAP schools are primarily those developed for special populations and as such have different governance policies than the comprehensive high schools.

Only 220,000 of the 260,000 twelfth graders in CAP schools completed the CAP tests in 1981-82. No single explanation was gained in our case studies for this, but absenteeism, student transiency, and differences across schools in retesting procedures were cited. Monitoring student enrollment and testing is a major problem for school personnel, and the total enrollment figure itself is subject to some question. (Student monitoring is discussed in Chapter 4.) Which students and how many students are not being tested may be important testing policy issues for further study.

High school students are distributed unevenly across schools and districts in California. There are many districts with fewer than 100 students, and a few districts which enroll over 50,000. Because districts vary in grade level structure (elementary, secondary, and unified), district size comparisons will be made in terms of a single class or cohort, twelfth graders. As shown in Figure 1.2, roughly half of the districts with a high school enrolled only 10 percent of the twelfth graders. Conversely, about half of the twelfth graders were enrolled in only 10 percent of California's districts, the forty largest ones.

Figure 1.2
PERCENTAGE OF TWELFTH-GRADE ENROLLMENT
ACROSS DISTRICTS (1981-82)



What this means for educational policy is that the curricular decisions made in 40 districts (the largest ones) have a greater than proportional effect on students (and presumably on student achievement). State policies, too, may have very different effects and place different pressures on smaller or larger districts with correspondingly smaller or larger district states.

Sampling randomly from schools in the 380 districts would not have produced information on district policies in proportion to the numbers of students affected. Therefore, the districts in which Paths schools were selected are in rough proportion to distribution of students, as shown in Table 1.2.

- About 50 percent (14) of the Paths schools are in the largest 40 districts, including the 5 largest
- About 40 percent (9) are in the mid-range
- About 10 percent (3) are in the smallest districts

Table 1.2

PATHS—STUDY SCHOOLS AND DISTRICT TWELFTH GRADE ENROLLMENT

Number of 12th graders in district	Statewide		Paths study schools selected	
	Number of districts	Percent of 12th graders	Number	Percent
0—325	193	10	3	11
325—2,550	147	40	9	35
1,550—32,000	40	50	14	54
Source: CBEDS	380	100%	26	100%

Districts and schools not only vary greatly in size, but also in a number of other ways which potentially affect curricular planning. The 26 schools in the Paths study were purposefully selected to represent the range of the most important sources of variation. These are:

- Size (district and school)
- Socioeconomic status (parent education level - CAP)
- Achievement (CAP)
- Minority enrollment (total percent and particular ethnic groups)

This sample was not selected to represent the central tendencies of the statewide distributions. Instead, it captures the range of characteristics which affect the implementation of state-level curricular policies. In addition to selecting schools across the range of each variable listed above, schools were selected across the state to capture geographic, employment, and political differences.

DISTRICT-LEVEL CURRICULAR POLICIES AND PRACTICES

Length of Periods and School Day

Length of school periods were found to range from 45 to 55 minutes, with a mean of 51.2. Students were reported to take an average of 5.7 classes per day. Students can take as many as eight classes or as few as one, depending on their year, completion of requirements, outside employment, or other programs available outside of the school.

Course offerings

District administrators and school boards have responsibility for major curricular decisions -- setting course graduation requirements and proficiency standards. Districts develop or approve the lists of courses which can be offered at each school. Districts may have detailed "scope and sequence" descriptions of courses or content areas or they may have overall, general statements of goals for skills and content in each subject area. In most cases, it appears that these requirements and course lists are "generic", describing broad content areas or topics which are standardized to widely varying degrees. Schools (and departments and teachers) have varying autonomy across districts to determine the specific content which fulfill requirements.

Some districts attempt to coordinate curriculum, courses, content, sequences, assessment, and access through testing programs, curriculum committees, and staff development. Others leave these issues to school-level decision makers. These organizational processes also involve subtle inter-relationships and can shift responsibility or control back and forth. For example, new courses or major changes in existing courses can be initiated by teachers, departments, schools, district personnel, school boards, or various other groups in schools and the community at different times.

Paths schools either draw their courses from a district "active list" of allowable courses or choose them according to district guidelines. Decisions regarding course offerings tend to hinge upon what is traditionally offered at the school, enrollment projections or actual pre-enrollment information, and teacher preferences and availability.

Teacher assignment

The assignment of teachers to specific courses or areas and assessment of teacher qualifications are sometimes coordinated by districts through personnel policies, with varying specificity. In all schools, teachers were reported to be teaching subjects for which they were qualified. However, in one school the most qualified science teacher was assigned (or chose) to teach calculus. In another, the math teachers taught the most advanced math courses and other non-math teachers were assigned the lowest level (remedial) courses. In one of the smaller schools, teachers developed expertise and taught outside their credentialled areas because no one else was available. Thus, the ways in which teachers were judged to be qualified and assigned varied significantly across the districts studied.

Student progress

Monitoring of student progress was most often delegated to schools through courses and requirements, grading standards, and student placement or grouping criteria. A few districts have centralized computer facilities to monitor students, but most districts do not use the technology available for curriculum management or monitoring students.

Grading policies

All districts studied have grading policies and may check on grade distributions by school or teacher. However, few relate or anchor grades to any standardized measures of achievement or specific achievement criteria (books read, papers written, etc.). Some districts have used staff development or teacher in-service training to coordinate curriculum and teaching (e.g., Bay Area Writing Project). These provide common standards and grading procedures specific to topics or skills, and seem to be effective if tied to some assessment such as proficiency tests. Grading standards were most often determined by individual teachers.

Homework policies

Some districts have homework and class assignment policies, either by grade level or subject. For example, homework can be recommended at the secondary level for a half-hour per subject each day. Homework policies are generally set at the school, department, or teacher level.

In summary, districts vary in how specifically they coordinate curricular policies. They differ greatly in other ways, described below, which may help to explain the various approaches taken to curricular policies. District size has been described earlier in this chapter and determines both the number of students and number of teachers governed by district policies. In addition, larger districts have support services (e.g., curriculum coordinators) not available in small districts.

Variation in District Characteristics

California's extreme range of geography and population density result in widely differing districts and schools within districts. Teachers and administrators interviewed frequently referred to the "unique" character of the community in describing their school policies and practices. In order to adequately cover these differences in our investigation, Paths schools were selected within urban, suburban, rural, and mixed districts across the state. The northernmost lumber towns, isolated mountain areas, huge rural and urban central valley districts, city centers, and traditional suburbs are all represented.

District Type. Grade-level structure has implications for coordinating curricular policies and practices such as proficiency and course of study requirements. California school districts have three grade-level structures, shown below.

Table 1.3
DISTRICT GRADE-LEVEL STRUCTURES

Elementary-only (K through 7, 8, 9; may include junior high) . .	661
Secondary only (9 or 10 through 12)	115
Unified (K through 12).	265
Total	1,041

Course offerings in three- and four-year high schools are different, and articulation between junior and senior high schools affects curriculum planning. Lack of consistent grade-level structure across districts and schools makes implementation of state-level policies for secondary schools more complex.

The largest districts tend to be unified. The smallest have elementary grades only. This study includes only schools from the 380 secondary-only and unified districts in its focus on high school policies.

School Finance. The per-pupil expenditure figures used here are the 1981-82 district revenue limits, determined by legislative formulas to comply with court ordered equalization of spending (Serrano). The mean revenue limit for all 380 districts with high schools is about \$2,000. The lowest is approximately \$1,750 and the highest is \$3,400. Among the Paths schools the lowest is \$1,800 and the highest is \$2,400.

In the Paths study, schools at all levels of per pupil expenditure offer courses which meet Education Code requirements and UC admission requirements. The major effects of post Proposition 13 financial constraints were reported to be lack of materials and textbooks and cutbacks in summer school, which

has significantly affected course content and course availability. This was particularly found to be the case in districts with declining enrollment.

This is reportedly due to the combined effects of increased costs, insufficient inflationary adjustments, and lowered state funding as a consequence of the decreasing enrollment. In other words, all schools offer the necessary courses. However, they vary regarding academic electives or elaborated course sequences, e.g., courses beyond the specified requirements, such as advanced levels of foreign language courses, advanced math in the lower tracks, etc. Because of financial constraints, poorer schools (and smaller schools) have fewer options and therefore offer a simpler, or stripped-down, curriculum.

Textbooks and materials. When cutbacks occur, textbooks are not updated or replaced when lost or destroyed. For students in college preparatory courses of study, science texts were most often cited as being badly out of date. Teachers reported that students in lower track courses of study do not return the textbooks, and when resources are limited, these books are not replaced. Therefore, teachers restrict book use to the classroom, or substitute teacher-made materials (e.g., "dittos"). Teachers also complained about the lack of appropriate textbooks available for students at the lower reading levels, particularly in mathematics and science.

Thus, in many cases, the lack of money for textbooks and materials was reported to result in the use of old books by upper track students and no books for lower track students.

Summer school. Two of the study schools reported that loss of their summer school programs after Proposition 13 was the most significant factor contributing to the reduction in number of course offerings, and that which has most seriously affected curriculum, instruction, and curricular organization,

In one school, personnel cited significant reduction in the number of advanced English and science courses. Previously, college-bound students would take "basic" subjects during summer session and have time available for advanced academic electives during the regular school year. When summer school was eliminated, these students no longer had time to take the most advanced level courses.

Another school had run a large summer program for many years, with a steady enrollment of about 1,100. Included in this group were (1) incoming freshmen taking pre-English, pre-Algebra, or typing; (2) students making up failed courses or deficient credits to get back on track for graduation; and (3) college prep students taking requirements such as history, government, or the third semester of algebra in order to be able to take advanced academic electives during regular semesters. Students who previously had a chance to make up classes during the summer must now take these classes during the regular semester, increasing class sizes and aggravating the shortage of books. American History/Government and Health courses (required for all students) are under particular stress. At the same time, summer school had previously provided the departments and teachers with an opportunity to try out new courses and new teaching methods.

SCHOOL-LEVEL CURRICULAR POLICIES AND PRACTICES

School-level policies have potential to affect curriculum planning and coordination, but several factors mitigate against school-level efforts. Schools have many different departments and specially funded programs to coordinate. Paths schools have an average of 11 different departments and several important special programs. Paths schools varied in size of departments from 1 teacher to 29 full-time equivalent positions.

Table 1.4
SPECIALLY FUNDED PROGRAMS IN THE 26 PATHS SCHOOLS

Funding source	Number of Paths schools
Special education	22
Compensatory education (Title I)	15
Bilingual	13
School Improvement	8
ROP	3
Other special programs	17

Table 1.5
DEPARTMENTS IN THE 26 PATHS SCHOOLS

Department	Number of Paths schools	Department	Number of Paths schools
English	24	Art	17
Math	24	Home economics	11
Science	24	Agriculture	4
Social studies	24	Health and Safety	3
Foreign language	24	Proficiency, basic skills, reading	3
Physical education	24	Consumer and family studies	4
Business	21	Combinations (e.g., math/science, humanities)	7
Fine or performing arts	12		
Music	11		

In the Paths schools decisions about course content, criteria for student placement, course articulation, grading standards, and teacher assignments were found to be made at the department level. In only a few schools were any policies found which articulated courses or standardized practices across departments. School-level practices which were reported to promote interdepartmental coordination included meetings of department chairs with counselors and vice principals, and scheduling and planning for particular student cohorts or special populations (e.g., college prep, remedial, bilingual).

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Principals in the study schools were found to have less curricular involvement than expected. When asked about the structure of the curriculum and the ways in which decisions about courses are made, principals referred interviewers to vice principals or department chairs. In all schools, decisions not made at other levels (i.e. district) were considered the domain of the teaching staff. Principals reportedly had little to do with actual instruction or curriculum plannings. The principals' knowledge of specific details about curriculum depended on the size of the schools, the role developed regarding teaching and curriculum, and the length of time in the school.

In smaller schools or schools where the principal had been a teacher, the principals appeared to have more immediate knowledge and described more of an active role in curriculum and teaching. Their contacts with teachers about daily matters were described as informal and personal. In larger schools, principals relied on vice principals and department chairs to report on the curricular planning and teaching. In large districts, principals described themselves as carrying out district policies and managing schools by delegating curricular responsibility to others particularly those with more years of experience at the school. The role taken by these principals seems to be more managerial than instructional due to the size and complexity of the schools they administer.

The principals in the PATHS schools were found to have been in their schools a significantly shorter time than the other school staff members. The mean number of years for principals at Paths schools is 6.7, but the range is from 1 to 28 years. Table 1.6 shows the of number of years at the schools for principals, vice principals, counselors, and department chairs.

Table 1.6
STAFF YEARS FOR KEY ADMINISTRATIVE POSITIONS
IN THE 26 PATHS SCHOOLS

Position	Mean years at school
Principal	6.7
Vice Principal	11.9
Counselor	13.0
English Department Chair	15.2
Math Department Chair	13.7
Science Department Chair	15.5

The assumption that high school principals typically serve as instructional leaders in the same sense as elementary school principals described in effective schools literature would seem questionable. High school principals manage highly complex organizations, have varying involvement with curricular decisions, delegate much of this responsibility to other significant site personnel, and are often far less established at the school than those personnel. In reform efforts aimed at high schools, consideration should be given to extending the concept of instructional leadership to include department chairmen and other significant school personnel.

Variation in School Characteristics

Schools vary internally and from each other in a nearly overwhelming array of different and changing sizes, mixes of students, and curricular traditions. Some of these will be described briefly to indicate why curriculum is not often (or easily) determined and coordinated at the school level or higher.

Table 1.7 shows how the 26 Paths schools compare on a number of important variables. Each variable listed has implications for school-level curriculum policies and management.

School Size and Grade Levels. Using the number of twelfth-graders as a measure of school size, study schools ranged from 26 to 934. The size of a school determines the number of different courses and course sections which can be offered. Twelve of the schools reported declining enrollment, three increasing, seven steady, and four had inconsistent changes over the past few years. They have grade level structures of 7-12, 9-12, or 10-12.

Achievement and Socioeconomic Status. The Paths schools range from the 6th to the 99th percentile of CAP achievement across the state. The achievement levels and range of students in a school determine the range of content, level, and pace of courses which must be offered to meet student needs. Schools with wide ranges of achievement levels to serve must have wide arrays of courses; conversely schools in which students are more alike can target their efforts toward a narrower range of achievement. Most schools have a wide range of student achievement levels to serve.

One of the Paths schools (i.e., School 2) has half of its students in the top quartile of students in the state. Some Paths schools (i.e., Schools 14 and 19) have over 40 percent of students in the lowest quartile in the state. The educational tasks facing these kinds of schools will be very different. Statewide, only five schools have over half of their students in the top quartile. Thirty have less than 10 percent in the top quartile. Most schools serve the full range of students, approximately distributed across quartiles. Therefore, each of these schools must provide courses at the highest and lowest achievement levels.

The socioeconomic status measure used here is the parent education level asked of twelfth graders on the CAP test. This measure correlates extremely highly ($r = .75$) with the reading achievement mean score for schools. Parent education levels have implications for community involvement and curricular expectations, as well as postgraduation destinations anticipated by students.

Ethnic Minority Enrollment and Limited-English Proficiency. Many schools have students from a wide variety of ethnic groups. Students' basic skills and English proficiency are primary factors affecting the curriculum offered by a school. The existence of different ethnic groups and LEP students poses problems for school management and curriculum in terms of cultural and language differences. The greater the diversity, the greater the need for carefully planned and appropriately designed programs of study.

In addition to the total minority population at each school, there is great variation in the number of ethnic groups and the proportions of each group within the schools. Statewide, there are very few high schools with only one predominant ethnic minority group. Within the Paths schools the proportions of each ethnic group are shown in Table 1.8.

Even this breakdown does not capture the true diversity of students. Within an ethnic category, educational approaches needed for Hispanic immigrants with no English skills are different from those needed for second or third generation California-educated Hispanics. Similarly, those categorized in the Asian population include all socioeconomic and achievement levels, with a variety of linguistic backgrounds, from English-only to singular Laotian dialects. The proportions of LEP students in Paths schools are given in Table 1.7.

A final factor affecting school planning is the rapid change in ethnic populations at each school. Stability was the exception rather than the rule in the Paths schools. Most reported changes in enrollment with increasing minority populations, particularly Hispanic, Vietnamese, Laotian, Taiwanese, and Pacific Islanders. In addition to providing English-as-a-second-language (ESL) instruction, planning curricula for such variety in all academic areas presents problems for each department.

Table 1.7
PATHS STUDY SCHOOLS' CHARACTERISTICS, 1981-82

Paths School	Total dis- trict en- roll- ment	Number of 12th graders in Paths schools	School commu- nity type*	Parent educ level**		Ethnic minority		LEP per- cent ††	Reading Per- cen- tile rank†	CAP		Math Percen- tile rank*
				Scho- ol Mean	Per- cen- tile rank†	Per- cent ††	Per- cen- tile rank†			Compari- son scores***		
										Read	Math	
1	14,103	552	S	2.9	53	33.8	59	8	44	W	W	48
2	9,288	506	S	4.3	98	13.5	27	0	99	A	A	99
3	26,590	626	S	3.6	92	8.0	12	0	91	W	A	95
4	914	26	R	2.4	18	35.3	62	0	69	A	A	78
5	12,932	497	S	2.8	41	28.4	54	16	57	A	A	55
6	10,867	661	S	3.5	84	34.4	61	15	87	A	A	93
7	21,510	430	S	2.6	25	72.4	89	4	18	B	W	28
8	9,231	458	R	2.4	18	49.0	74	5	16	B	A	35
9	5,651	387	S	2.9	52	47.4	73	20	40	B	B	30
10	32,877	163	U	2.8	40	67.0	86	9	27	W	W	32
11	14,372	279	S	3.4	84	12.4	24	0	93	A	A	90
12	44,965	350	S	3.3	77	13.5	27	1	60	W	B	49
13	7,765	324	S	3.6	92	35.8	63	7	71	B	W	88
14	47,585	483	U	2.4	19	99.4	98	0	6	W	W	3
15	530,888	678	S	2.8	42	46.6	72	6	43	W	A	59
16	3,476	384	S	3.5	88	25.2	49	-	88	-	-	85
17	57,264	460	U	2.7	37	47.4	73	1	13	B	B	10
18	109,442	934	S	3.5	84	27.6	53	9	78	W	A	94
19	58,371	347	U	2.6	29	91.2	96	22	5	B	B	12
20	627	129	R	2.6	31	13.0	26	0	49	W	W	35
21	15,293	440	U	2.7	39	42.1	68	1	23	B	B	22
22	9,606	270	S	3.5	87	18.5	37	1	85	W	A	93
23	9,556	532	S	3.6	89	21.0	41	5	84	W	W	85
24	3,386	49	R	2.6	32	10.0	19	0	63	A	W	32
25	5,330	224	S	3.5	88	18.9	38	3	91	A	B	60
26	10,281	250	R	2.4	17	12.7	25	0	32	A	A	27

*School community type: R = rural; S = suburban; U = urban

**Parent educ level (CAP): 1 = not a high school graduate; 2 = high school graduate;

3 = some college; 4 = college graduate; 5 = college plus

***Comparison scores (CAP): W= within expectancy; A= above expectancy; B= below expectancy

†Percentile rank is a statewide rank

††Percent of total students in school

Table 1.8
PROPORTION OF ETHNIC GROUP STUDENTS IN PATHS SCHOOLS
Ethnicity percentages

School	White	Hispanic	Black	Asian	American Indian	Filipino
1	66	16	2	9	1	6
2	87	2	5	6	0	0
3	92	4	0	3	0	0
4	65	4	0	0	31	0
5	72	23	3	2	1	0
6	66	16	2	12	1	3
7	28	34	19	12	1	6
8	51	43	5	1	0	0
9	52	14	12	7	0	14
10	33	58	2	5	0	1
11	88	5	3	3	1	1
12	87	7	3	2	1	0
13	64	7	23	5	1	1
14	1	1	99	0	0	0
15	53	33	8	4	1	1
16	75	10	3	9	0	3
17	53	14	27	5	1	1
18	72	7	11	9	0	0
19	9	24	39	7	0	22
20	87	13	0	0	0	0
21	58	19	19	3	1	0
22	82	5	1	2	0	1
23	79	16	2	3	0	0
24	90	6	0	0	4	0
25	81	12	5	1	0	1
26	87	6	2	1	3	0
Means: Paths	64	15	11	5	2	1
State-wide	66	19	8	5	2	2

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DEPARTMENT LEVEL POLICIES AND PRACTICES

Although curriculum can (and should) be planned and coordinated across the school, the department-level unit in secondary schools focuses on one area of study and develops the courses, sequences, standards, and access criteria for courses in that area. Departmental decision making is closest to the classroom and individual teacher in the hierarchy described in Figure 1.1, and hence has great potential for affecting the success of policies set at higher levels. Each academic department studied coordinated and assigned levels and content of courses for the various student cohorts. The importance of the parameters set at this level is described in Chapter 3.

Department chairs were found to be able to play a pivotal curricular and instructional leadership role in high schools. School-level administrators in the Paths schools were seldom reported to be curriculum or instructional leaders. Instead, they utilized others, e.g., department chairs and teachers, to fulfill these roles. Curriculum supervisors at the district level were not mentioned by those interviewed about curricular policies and practices. However, the interview questions did not specifically mention district curricular or supervisory personnel.

TEACHER LEVEL POLICIES AND PRACTICES

Individual teachers were reported to plan and modify their courses to fit within three constraints.

- Curricular decisions made at other levels (requirements, course sequences, resources, materials, time)
- The characteristics of students enrolled in each course
- Their own skills, abilities, and interests

Teachers are the ultimate implementers of curricular decisions made at other levels. They have varying degrees of autonomy and responsibility for what is taught. In some schools, teachers were reported to have complete autonomy over course content, pace, expectations, materials, assignments, etc. In others, there were attempts to coordinate such decisions at the department level, making them more consistent and clear to students.

Teachers reported that changing enrollments, absenteeism, and high transiency rates make planning courses difficult. Although students are commonly grouped according to achievement and/or interests, the mean and range of achievement within a class can shift from year to year as well as during the year. Teachers reported adjusting their courses and expectations according to each class' characteristics, which change depending on transiency rates. With limited ability to monitor and predict students' being in classes over time, teachers reported the need for organizational support to build a coherent educational experience for students.

Chapter 2

GRADUATION REQUIREMENTS

Chapter Summary

Two important sets of policies which structure and define standards for curricular experiences of California high school students are course of study and proficiency requirements for graduation. Course of study requirements, set by districts, are generic in their effect. They establish a minimal floor of time spent in courses and the exposure students have to various subject areas. They do not determine what the content or expectations will be in those courses. The courses students actually take to fulfill these requirements were found to vary greatly within--as well as across--the study schools.

Course of study requirements ranged from 170 to 235 units in the Paths study schools. Requirements are stated in various forms, and the commonly used "unit" varies in meaning. Differences in the length of class periods, from 45 to 55 minutes, result in a unit which represents significantly more instructional time required for graduation in some schools than in others.

The required units differed in allocation across content areas. For comparison, the units were grouped into specified academic, specified nonacademic (e.g., PE, driver's education), and elective categories. The academic units required represented less than half of the total needed to graduate. Various courses within each area can be taken to fulfill these requirements, since few specific courses were required of all students. Students' programs of study therefore vary in which courses they took to fulfill the academic unit requirements. Nearly half of the program requirements were electives. Differences in student programs increase with their selection of academic or nonacademic courses to fill elective requirements.

Proficiency requirements are more specific in their impact on the lowest achieving students. The requirements were reported to have redirected attention and resources to these cohorts, and necessary resources reportedly were taken from elective courses rather than from advanced-level courses. The specific impact was the creation of courses to enable students to attain basic skills and pass the proficiency tests. Curricular resources had to be allocated across the range of courses and achievement levels in a school. The curriculum has limited ability to adapt to new policy directives. Proficiency assessment forced the curriculum to concentrate on the lowest achievement cohort, reducing course offerings at the middle levels. The study found the most limited range of courses in schools with the widest range of student skills.

GRADUATION REQUIREMENTS: COURSE OF STUDY

In order to graduate from California comprehensive high schools, students must:

- Complete course of study requirements
- Pass proficiency tests in reading, writing, and mathematics

Both types of requirements are set at the district level. Each district determines what kind of courses to provide students and what minimum competencies are expected. The course of study requirements do not specify which courses students must take, but they do specify some areas within which students must complete some units of coursework. In addition to specifying a particular distribution of units or courses by subject area, course of study requirements also include additional courses called electives. Thus, in order to complete the required distribution, students choose electives to fulfill the total unit requirement.

Current course of study requirements are set by districts within broad guidelines from the state. An interesting finding in the Paths interviews was the lack of accurate understanding of these program requirements by local educators. Many school administrators and teachers interviewed were convinced that the state standardizes the curriculum by specifying a number of units, specifying particular courses for graduation, defining the unit of academic credit, or requiring certain textbooks. For example, several of the study schools offer a course entitled "State Requirements" which usually refers to civics, drivers' education, health, or safety education. In response to a request for the definition of credit used by the school, many respondents replied that their school conformed to the state-stipulated definition of credit. (There is no such definition.) Many people interviewed thought that the state defined the content of academic courses. For example, curricular vice principals and department heads, who might be expected to be familiar with the curriculum, frequently explained the content of math, English, and science courses as being required by the Education Code.

Several reasons can be offered for these pervasive misperceptions. The Education Code (at the time of data collection) specified broad areas of academic knowledge and some topics within these areas for inclusion in each school's curriculum. (See Education Code sections below.) In addition, the state publishes and distributes curriculum guides to assist districts in their academic planning. Each of these reasons could support the widespread and commonly held assumption that most students are taught the same material.

The state course of study graduation requirements at the time of data collection (1982) are given below.

Requirements for Graduation : California Education Code

51225. No pupil shall receive a diploma of graduation from high school who has not completed the course of study prescribed by the governing board. Requirements for graduation shall include:

- (a) English.
- (b) American history.
- (c) American government.
- (d) Mathematics.
- (e) Science.
- (f) Physical education, unless the pupil has been exempted pursuant to the provisions of this code.
- (g) Such other subjects as may be prescribed.

The governing board, with the active involvement of parents, administrators, teachers, and students, shall,

by January 1, 1979, adopt alternative means for students to complete the prescribed course of study which may include practical experience, interdisciplinary study, independent study, and credit earned at a postsecondary institution. Requirements for graduation and specific alternative modes for completing the prescribed course of study shall be made available to students, parents, and the public.

Instruction in Social Sciences

51227. Instruction in social sciences shall include the early history of California and a study of the role and contributions of both men and women, black Americans, American Indians, Mexicans, Asians, Pacific Island people, and other ethnic groups to the economic, political, and social development of California and the United States of America, with particular emphasis on portraying the roles of these groups in contemporary society.

Physical Education

51222. (a) All pupils, except pupils excused or exempted pursuant to Section 51241, shall be required to attend upon the courses of physical education for a total period of time of not less than 400 minutes each 10 schooldays. Any pupil may be excused from physical education classes during one of grades 10, 11, or 12 for not to exceed 24 clock hours in order to participate in automobile driver training. . . .

Drug Education

51260. Instruction shall be given in the elementary and secondary schools on drug education and the effects of the use of tobacco, alcohol, narcotics, dangerous drugs, as defined in Section 11032 of the Health and Safety Code, and other dangerous substances. . . . In grades 7 to 12, instruction on drug education shall be conducted in conjunction with courses given on health or in any appropriate area of study pursuant to Section 51220. . . .

Comparing Course of Study Requirements: Defining a Common Metric

Districts describe their course of study requirements in different formats. These can be stipulated as a number of units, a number of years in courses, or as specific courses. Districts usually use more than one format, specifying, for example, one or two courses in conjunction with required course hours and units in subject areas.

The most consistent measure used by the study schools was called the "Carnegie" unit. School administrators were asked to define this unit, and they did so in terms of class time. One class period per day, five days per week for one year (two 18-week semesters) equals ten units of credit in most of the study schools. A student taking five courses a year accumulates fifty units each year, totalling 200 units in four years; six courses a year accumulates 240 units in four years.

Despite the common use of a "unit" of credit by the schools, students are exposed to different amounts of class time in earning these units. Length of class periods in Paths schools varies from a minimum of 45 minutes to a maximum of 55, with a mean of 51. Students who had divergent amounts of contact time receive the same units of academic credit. These differences, as they accumulate over a semester, are illustrated in Table 2.1.

Table 2.1
COMPARING LENGTH OF CLASS PERIOD BY SEMESTER

	Minutes of student/instructor contact time			
	Mean	Maximum	Minimum	Difference
Class Period . .	51	55	45	10
Semester	4,590	4,950	4,050	900

Total Units Required

The total number of units required for graduation varies significantly across the Paths schools, ranging from 170 to 235 units with a mean of 209 units. The range of 65 units equals more than a full year's instruction for students taking five classes per day. Thus, graduating seniors from one school may have completed over a year's worth more coursework than seniors from another school.

Distribution of Course of Study Requirements Across Subject Areas

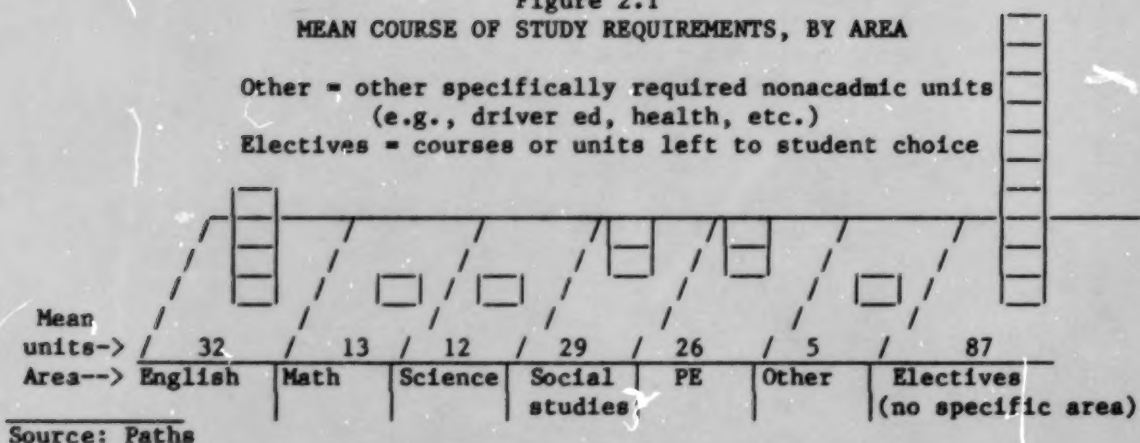
Districts required varying amounts of coursework in certain subject areas. The distribution of units in the most commonly required areas and those specified in the Education Code is shown below in Table 2.2.

Table 2.2
UNITS REQUIRED IN SUBJECT AREAS

Department	Mean	Minimum	Maximum
English	32	20	40
Math.	13	10	20
Science	12	7	20
Social studies.	29	20	40
Physical education. . .	26	10	40

Comparing the requirements in each area with the elective units clearly indicates the importance of the choices students make to complete their unit requirements. Figure 2.1 compares the units required in specified areas and as electives.

Figure 2.1
MEAN COURSE OF STUDY REQUIREMENTS, BY AREA



To determine the extent to which students take a common core of courses to graduate, those interviewed were asked about specific courses required of all students. Few specific courses are required of all students (less than four per school). Forty-two percent of the required courses are nonacademic such as drivers', career, family, consumer, or physical education. Of the specifically required academic courses, the majority are civics, U.S. government, or U.S. history courses offered within social studies departments. Math and science courses are required generically, and never by specified course title. Required English courses are only rarely specified by course title.

Distribution of Academic and Nonacademic Course of Study Requirements

To compare the amount of academic instruction required to graduate, course of study requirements can be analyzed as illustrated in Figure 2.2.

Figure 2.2
DIVISION OF PROGRAM REQUIREMENTS

	Specified requirements		Electives
	Areas	Courses—Examples	
Academic	English	Civics	Student choice
	Math	U.S. history	
	Science	U.S. government	
	Social studies		
Nonacademic	Fine arts	Drivers education	Student choice
	Practical arts	Safety education	
	Physical education	Health education	
		Swimming	

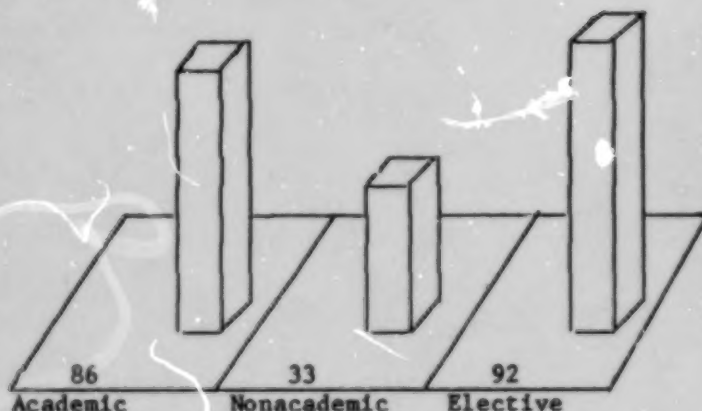
Academic area requirements include courses offered in the English, math, science, and social studies departments. No school required a foreign language. Academic courses count to meet elective requirements once the required units are completed. Therefore, since most high schools required 30 units or three years of English, completing four years of English accrues ten academic elective units. Nonacademic work refers to courses in departments such as fine arts, practical arts, or physical education (PE). Only two Paths schools required fine arts units; three required practical arts units. All required PE units, ranging from 10 to 45.

Comparison of the mean academic, specified nonacademic, and elective units required in the study schools is shown in Figure 2.3.

Figure 2.3
COMPARISON OF THE ACADEMIC, NONACADEMIC, AND ELECTIVE
MEAN UNITS REQUIRED FOR GRADUATION

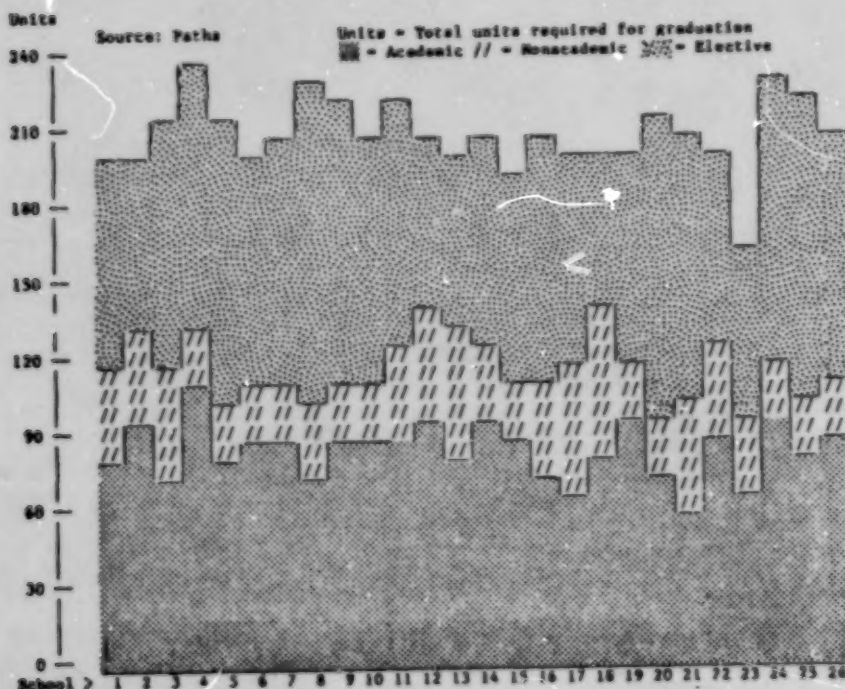
Courses	Units required		
	Mean	Mini- mum	Maxi- mum
Academic	86	60	110
Nonacademic	33	15	60
Elective	92	60	125

Source: Paths



The differences in the total units required and the proportions of academic, nonacademic, and electives in each of the study schools are shown in Figure 2.4. When compared in this way, it can be seen that coursework required in academic areas comprises less than half of the total.

Figure 2.4
DISTRIBUTION OF REQUIREMENTS IN ACADEMIC, NONACADEMIC,
AND ELECTIVE AREAS IN PATHS SCHOOLS



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Graduating from High School: Sample Courses of Study

In order to illustrate the differences in curricular experiences which students can have while completing current course of study requirements, student transcripts were analyzed in Paths School 9, where 230 units are required for graduation. About one-third of the required units are to be selected from within academic areas and one-half are elective. School 9 requires the same English courses for all ninth graders and 20 units of agricultural science can be substituted for the 10 required science units. The distribution of course of study requirements in School 9 is shown in Figure 2.5. The ways in which three students fulfilled these graduation requirements are shown in figures 2.6, 2.7, and 2.8. The courses taken by these students during four years of high school are given in Appendix B.

Students A, B, and C successfully graduated from School 9 the same year. Their programs do not show much variation in the number of units accrued compared to those required for graduation, because School 9 requires one of the highest number of units to graduate of the Paths study schools. However, the three students do vary in the proportion of academic units taken.

During the four high school years, Student A (Figure 2.6) completed the minimum of 80 academic units, the 30 nonacademic units, and chose 120 units of nonacademic electives. Sixty-five percent of this program was in nonacademic units of study, including 25 units of work experience. Unfortunately, the program breakdown into academic vs. nonacademic courses masks the vocational orientation (Foods and Restaurant Management) which is more apparent from the course listing (see Appendix B). Despite this masking effect of the table's format, Student A's program can be seen to be determined by minimal expectations--the minimum numbers of units, the minimum academic units, and the minimal nonacademic electives.

Student B's course selections (Figure 2.7) reflect a vocational orientation but the agricultural program appears more developed than Student A's home economics program. Twenty units of agricultural science were taken by Student B to meet the science requirements and support the basic agricultural skills, such as maintaining farm equipment and feeding livestock.

Student B exceeded minimal standards by taking 5 units more than those required to graduate and by choosing 12.5 units of academic elective. Forty-three percent of the program was academic coursework. For the most part, however, the distribution of the academic and nonacademic components of this program, like Student A's, was defined by the minimal academic requirements for graduation. What distinguishes Student B from Student A is the content of the academic courses. While Student A enrolled in an introductory year of a two-year algebra sequence, Student B took regular Algebra and Geometry. To meet the English requirements, Student B chose courses such as The Short Story, Creative Writing, American Literature, and Advanced Grammar; Student A took Language Skills, a basic course, for four semesters.

Student C's program, Figure 2.8, provides the greatest contrast. Student C took a few more credits, but most importantly, 68 percent of the coursework was done in academic departments with 80 units of academic electives. There

is no vocational program implicit in the choices of nonacademic electives, and there were only 10 units of work experience. The completed courses include ones specifically labeled as college preparatory (e.g, Biology in grade 10 or Writing in grade 12), as well as courses such as Chemistry, Shakespeare and 3 years of Spanish which suggest an intention to go on to college.

Figure 2.5
COURSE OF STUDY REQUIREMENTS AT SCHOOL 9 (230 Units)

	Specified (48%)		Elective (52%)
	Areas	Courses	
Academic 80 units	English (20) Math (10) Science (10) (or Ag science—20) Social studies (20)	English 1-2 (10) Civics (5) State requirements(5)	
Non- academic 30 units	Physical educ (30)		
Total	90 units	20 units	120 units

Figure 2.6
STUDENT A'S PROGRAM OF STUDY (230 UNITS)

	Specified (48%)		Elective (52%)
	Areas	Courses	
Academic 80 units (35%)	English (20) Math (10) Science (10) Social studies (20)	English 1-2 (10) Civics (5) State requirements(5)	
Non- academic 150 units (65%)	Physical educ (30)		Home economics (52.5) Business (10) Art (5) Music (20) PE (7.5) Work Exp (25)
Total	90 units	20 units	120 units

Figure 2.7
STUDENT B'S PROGRAM OF STUDY (235 UNITS)

	Specified (51%)		Elective (49%)
	Areas	Courses	
Academic 102.5 units (44%)	English (20) Math (10) Ag Science (20) Social studies (20)	English 1-2 (10) Civics (5) State requirements(5)	Math (12.5)
Non- academic 132.5 units (56%)	Physical educ (30)		Industrial arts(20) Agriculture (25) Business (10) PE (7.5) Work Exp (40)
Total	100 units	20 units	115 units

Figure 2.8
STUDENT C'S PROGRAM OF STUDY (235 UNITS)

	Specified (46%)		Elective (53%)
	Areas	Courses	
Academic 160 units (68%)	English (20) Math (10) Science (10) Social studies (20)	English 1-2 (10) Civics (5) State requirements(5)	Math (20) English (15) Social studies (5) Science (10) Foreign language(30)
Non- academic 80 units (32%)	Physical educ (30)		Business (10) Music (15) PE (10) Work Exp (10)
Total	90 units	20 units	125 units

The Generic Quality of Course of Study Requirements

As described here, students take very different courses to graduate from high school. Course of study requirements set the exposure time within academic areas, which is important, but not the content to be learned. Thus, these requirements may be termed "generic" in that any course offered within a subject area may be taken to fulfill the area of elective requirements. As will be described in subsequent chapters, however, student programs of study are not randomly selected. The content of courses taken are determined through the curricular planning processes at each school, primarily at the department and teacher levels. It is at these levels that generic course of study requirements are made specific.

GRADUATION REQUIREMENTS: PROFICIENCIES

Proficiency requirement policies are a mechanism by which external leverage has been placed upon schools to ensure that all districts set minimum performance levels for basic skills. Proficiency assessment was mandated by the Legislature in 1976 to ensure that no student could graduate from high school without achieving minimal competency levels in the basic skill areas of reading, writing, and mathematics.

Like course of study requirements, proficiency standards are different across California's school districts. Each district is required to establish standards which all students must meet prior to being awarded a diploma. Locally set standards are intended to match local curriculum, teaching, and public expectations of graduates. Districts develop or purchase tests, set passing scores, and establish testing and remediation programs.

Proficiency standards appear to have a negative impact on fewer students than course of study requirements do. More seniors who failed to graduate from Paths schools in 1981 did so because they failed to complete course requirements than because they failed to meet proficiency requirements. The relative impact of course of study requirements and proficiency testing on graduation rates are displayed in Table 2.3.

Table 2.3
GRADUATION RATES IN PATHS SCHOOLS (1981)

Outcome of graduation requirements	Mean
Graduating	94.4
Not graduating	5.6
Passed courses, failed proficiency tests	0.7
Passed proficiency tests, failed courses	3.4
Failed courses and proficiency tests	0.9

Effects of Proficiency Requirements Upon Curriculum

A quarter of the Paths schools reported no curricular change or only minimal administrative modifications as a consequence of proficiency requirements. Nineteen schools reported changes which involved adding new remedial courses, tutorials, or extra sections to the existing math and English courses. Almost a third of the Paths schools reported a general refocusing of curricular concern and use of resources toward remedial courses and low achieving students.

While less academically oriented students may be receiving increased effort and attention, there is some evidence that higher achieving students are receiving somewhat less. Proficiency assessment was mandated by the state without increased funding (except for special summer school and parent notification costs.) Thus, in order to increase courses or attention to the lowest achieving students, schools have to reallocate available resources. Where the resources are taken from has been a serious concern, with some speculation that the upper end of the curriculum (i.e., advanced academic courses) would be hardest hit.

Generally, this was not found to be the case, with the following exceptions. Four schools reported increasing the size of upper level classes and dropping electives. Two of the schools that experienced a shift of concern away from the more academic students perceived it as timely and appropriate. The effect of the change upon more academically oriented students does not appear to be detrimental to their curricular progress. Although some electives may have been dropped, there were no reports of courses eliminated from the more advanced curricular sequences (e.g., fourth-year English, math, or science).

A number of forces within schools serve to maintain the advanced academic courses within the limits set by student achievement and enrollments. Students enrolled in these courses are not likely to be re-enrolled in proficiency remediation if the advanced courses were dropped, so there is no direct reason to exchange these course resources. Maintaining strong college preparatory course sequences is important for a school's image, both internally and within the community. College preparatory courses are the hallmark of excellence and demonstrate most clearly that desirable goals are being maintained and achieved. School administrators point to their advanced academic courses with pride. Teachers feel an obligation to offer courses which would enable students (even if only a few) to go to prestigious

colleges. While teachers like teaching their "own" electives (i.e., courses they developed), they also prefer more advanced content over lower level courses and higher achievement levels to lower.

Most schools reported that curriculum erosion or change over the past years (not necessarily due to proficiency remediation) was greatest in the electives which could be offered. These include academic and nonacademic courses, but represent specialized content such as foreign languages, oceanography, the short story, music appreciation, and homemaking. These courses can only be sustained with adequate enrollment and staffing--when reallocations are made, they are the first to be considered for elimination.

In schools where proficiency requirements have had an impact, that impact has been on the lowest achieving students. While graduation requirements defined the minimum curriculum, the proficiency standards identified students who had not attained minimal levels of reading and math skills and served to rechannel concern and effort toward the remediation of low achieving students.

As described in Chapter 1 of this report, high schools are faced with great differences in incoming student characteristics. They are forced to provide a wide array of courses and sequences of courses to meet the needs of diverse students. The pressure to provide courses at the lowest as well as highest achievement levels leads to trade-offs in allocation of resources and attention to various levels. The broader the range of students being taught, the less depth can be offered at each level.

Given limited resources, when the range of student achievement and course levels increases, electives are eliminated in an attempt to cover the range. Schools with narrower ranges of achievement can offer more courses at each achievement level.

Reports about proficiency assessment and its impact (e.g., Statewide Summary of Student Performance on School district Proficiency Assessments, 1982) are available from the Department of Education.

Chapter 3

CURRICULUM STRUCTURE

Chapter Summary

High school courses are differentiated to group students homogenously and focus content according to student achievement levels and destinations. Schools use various terminology for their grouping--for example, streaming, laning, or tracking. In this report the process is referred to as tracking.

All Paths schools track students in the English, mathematics, and science departments. The study schools report planning courses and sequences for two to five tracks, excluding special education, compensatory education, and bilingual programs. Departments within the same school establish their own criteria for grouping and can have different numbers of tracks. For purposes of comparison, the most commonly found tracks within the study schools can be described as GATE (Gifted and Talented), college preparatory, general, and lower. GATE and college preparatory are often combined for simplicity since many courses in these tracks have the same titles and all are college preparatory. Most of the schools have vocational education departments, but vocational education was not typically reported as a "track."

Analyses of curricular "maps" describing the tracks indicate how students receive different kinds and amounts of content in their high school coursework. Student course paths follow the curricular structure planned by each department and result in very different courses and content for each cohort of students.

Tracking: An Organizational Response to Student Diversity

The differences experienced by students in their coursework taken to graduate (described in Chapter 2) can be partly explained in terms of the organization of curriculum by schools. Most of the differences in course paths constructed by students are systematic, resulting from the course planning and placement processes. Each cohort entering high school includes students at a wide range of ability and skill levels, with different expectations and intentions for their postgraduation futures. High schools differentiate their curriculum into several tracks, streams, or lanes to divide these students into homogeneous groups for instructional purposes--a process referred to here as tracking. The content of the curriculum to which a student is exposed depends upon the track the student is assigned to or chooses.

Tracking is a complex organizational system which has both structural and procedural features. The structural component, differentiated curriculum, is the subject of this chapter. The procedural component, placing students into various course sequences, is the subject of Chapter 4. As described here, tracking refers to the organizational handling of a widely diverse student population. Tracking differentiates courses and students, matching skills and abilities to course content, pace, and expectations. Once students are tracked, they have certain educational experiences (those of the curriculum associated with their track) and they are not exposed to other experiences.

School personnel do not readily state their tracking policies and procedures, and tracking systems are sometimes difficult for respondents to describe. The term "tracking" was not used comfortably by some respondents because it is closely associated with policies of discrimination or inequity. Tracking sometimes implies an unalterable course to a fixed destination and this metaphor is not compatible with the egalitarian ideology of public education. Respondents often selected less loaded terms to describe the school policies, such as "self-tracking" or "career choice."

As used here, in contrast to the perjorative connotation, tracking refers to the organizational processes by which schools develop courses and sequences for different students. Courses and sequences are most commonly planned to group students into homogenous achievement groups for academic instruction (for example, separating readers from nonreaders) and to fulfill postgraduation plans, such as college entrance. Tracking which has the effect of isolating students by race or ethnicity is proscribed by law. Tracking in which placement is permanent, and cannot be altered by student or parent is also illegal. Such practices, however, are not implied in the definition used here. Tracking systems can be effective organizational procedures for providing appropriate instruction and content for students with different skills and aspirations.

Another factor contributing to the difficulty of explaining tracking policies is the effect of organizational roles upon the school personnel perception of tracks. In general, department chairs and teachers, who are most closely involved in the actual process of creating courses and sequences, proved to be the most clear and informative. Administrators and counselors in their nonteaching capacities often avoided mention of tracking and focused on student choice as the major determinant of curricular experiences in high school.

Tracking Systems in Paths Schools

Although some respondents were reluctant to call their practices tracking, curriculum differentiation or tracking systems were found in all Paths schools. Each school has its own system for differentiating the curriculum, and many labels are used for the same organizational phenomenon. Some schools assign alphabetic or numeric codes to the courses within a track; others distinguish tracks on the basis of students' intended postgraduate destinations; and a few characterize the track by the content of the track itself. In the Paths schools, curriculum materials and interview responses indicated between two and five tracks (excluding students in special programs such as special education, compensatory education or bilingual education). Four schools reported two tracks; 11 reported 3 tracks; and 11 reported 4 tracks.

The four-category scheme in Table 3.1 is based upon an assessment of the relative requirements of the programs within the schools and provides a

means to compare tracks across schools. The schools' names for tracks are listed as they are grouped under each category.

Table 3.1
TRACKS WITHIN PATHS SCHOOLS

Upper	College Prep	General	Lower
Honors	Academic	Nonacademic	Remedial
Advanced Placement	University prep	College interest	Remedial transition
Gate	UC prep	Community college	Terminal
Gifted	College prep	Regular	Development
Level 300	State Univ prep	Pre-college	Basic
H Lane	College bound	Vocational	Level 50
	Level 200	Level 100	C Lane
	A Lane	B Lane	

The distributions of students by track can be estimated only roughly because each school has a unique tracking system. The range of the student population assigned to the tracks, given in Table 3.2, reflects the different tracking structures as well as the diversity of students within each of the Paths schools. Since each tracking system was unique, it is difficult to determine the average percentages in each track. About 10 percent of students in the study schools were in a GATE track, about 35 percent in a college preparatory track, about 45 percent in general track, and about 20 percent in remedial or lower track (these figures do not total 100 percent since some schools use other than the four categories of tracks discussed here).

Table 3.2
DISTRIBUTION OF STUDENTS BY TRACK
IN PATHS SCHOOLS

Track	Percent of student population
Upper	3 — 30
College prep . . .	15 — 76
General	25 — 75
Lower	4 — 30

Most schools distinguish between "lower-track" students and the "general" student, although one school merged these categories. Five Paths schools collapsed college prep and general tracks, while three combined advanced students with those in college prep sequences.

Vocational education is not identified as a distinct category because only four schools reported its presence as a track. Twenty-four Paths schools have industrial, domestic, or vocational arts departments which offer courses, but these are not developed as separate tracks in academic areas. Instead, they are elective courses.

Tracking Criteria

Tracking systems are implemented using policies or procedures determined at the district, school, and department levels. Often the schools set broad policies which are worked out in detail at the department level. School-level policies differentiate students into general categories and specific course sequences are developed by departments. All the Paths schools reportedly

used achievement measures, student postsecondary plans, and teacher recommendations as the primary grouping criteria. Schools were found to use different specific forms of these criteria, for example:

- Grades from earlier years
- Comprehensive Tests of Basic Skills (CTBS) or other standardized achievement tests
- Proficiency test results

Each academic department in a school sets the criteria for initial course placement and for continuing in a sequence of courses. When the criteria are content specific, e.g., math achievement, some students are in different tracks in different subjects. For example, students can be in college prep English and general math. Often, however, placement is based on basic skills such as reading level resulting in students beginning in the same track across content areas. This practice is justified by school personnel as necessary because of the importance of reading skills to instructional methods.

The criteria for staying in a course once placed or continuing to more advanced level work are set by teachers. Some departments and schools coordinate or standardize criteria and courses through various mechanisms, primarily texts, scope and sequence descriptions, and tests. However, the specific topics covered, pace, expectations, grading, and homework, are all determined by teachers for each course. Since course plans were reported to be modified in response to the particular characteristics of each class of students, courses vary considerably in how they prepare students for subsequent work. Teachers complained that students may not have the skills and knowledge expected even after successfully completing courses listed as prerequisites.

Course Content and Articulation

The actual content of courses offered by a school is primarily determined at the department level where teachers make curricular decisions within guidelines established at the district level. The school's administrators or counselors were reported to be rarely involved in curricular decisions other than procedural matters such as approving a request initiated by a department or teacher to offer a new course.

The degree to which courses are coordinated within a department or school was found to vary considerably, as did the rationales given to students for the particular courses contained in a sequence. In many cases, the traditional college prep sequences are offered without any indication of how or why courses might be sequential, e.g., algebra-geometry, biology-chemistry. In a few schools, course content and skills are described as they fit together into progressively more advanced work. The rationale and course descriptions in these cases convey a clear plan for moving students into courses with higher order content. An excellent example of such course

content description is provided from the course catalog of Paths study School 2, in which basic chemistry courses are differentiated.

CHEMISTRY 1A

Year: 11-12

Suggested Course Preparation: Completing of Math 2A or 2B with grade B or better. Students should either be taking or have completed Math level 3. Chemistry 1A is designed for science-oriented students or liberal arts students who are interested in science. It fulfills the laboratory science requirement for the Univ. of California. The course is divided into 10 topics with appropriate laboratory work:

- (1) atomic theory; (2) chemical reactions; (3) gases, liquids, solids, solutions; (4) periodic table; (5) atomic structure and chemical bonding; (6) energy involved in rates of chemical reactions; (7) equilibrium in chemical reactions; (8) acid-base reactions; (9) oxydation-reduction reactions; (10) organic chemistry--structure of carbon compounds.

Approximately one-third of class time is spent in the lab. Lab investigations are coordinated with the text and used to reinforce the theory study. Daily homework assignments involving reading, writing lab reports, and problem solving form the backbone of the course.

CHEMISTRY

Year: 11-12

Chemistry 1B is a more practical experience that should appeal to a larger number of students who plan to enter the field of liberal arts. The course will fulfill the laboratory science requirements for the Univ. of California. The course treats chemical concepts in a manner that will be meaningful for the students. There will be a thoughtful correlation between chemistry and other related fields. A great deal of emphasis will be placed on laboratory work. Chemistry 1B contains five main units: skills development, structure of matter, and the periodic chart, chemical formulas and equations, and consumer chemistry. The student is expected to do homework on a daily basis and keep an up-to-date laboratory report book. This course is highly recommended for student who plan to enter a nursing or paramedical type program after high school graduation. The course is not intended for students who are capable of success in Chemistry 1A. Students who have successfully completed Math M2 or higher may not enroll in Chemistry 1B.

Curricular Maps

Curricular maps are used by departments to describe how the overall curriculum is organized into course sequences for different kinds of students. Most often the maps are intended for internal use, but some departments distribute maps to students to help them select courses or sequences. The following three figures display curricular maps from three departments, each in a different school, that demonstrate the department-level organization of courses available to student cohorts.

An English Department Curricular Map. The English curriculum represented in Figure 3.1 is from School 5, which requires 30 units of English for graduation. Student placement in one of five programs is determined by junior high teacher recommendations, test scores, and writing samples. The Basic program includes students ranging from nonreaders to those reading at about fourth-grade level. Available to them are either three years of remedial reading or an English 1-6 sequence. No academic electives in the English Department are generally available to them, and they were reported to usually complete only the minimum units required. The "Y" English program is addressed to students reading at two grades below actual grade level. It is skills oriented, and presents a wide range of less-academic electives, as suggested by the titles of the course offerings. Students reading at grade level are assigned to the "X" program where they are exposed to a two-year sequence of composition and literature followed by electives. Because students may choose electives from their track or the track just below theirs, "X" students have many more electives to choose from than do "Y" students. GATE students take an advanced form of composition and literature for three years and then choose from "X" electives in grade twelve or take advanced placement.

A Math Department Curriculum Map. The math curricular map displayed in Figure 3.2 originates at School 7 where 20 math units are needed for graduation. Placement is based upon the student's test scores, teachers' recommendations, and intended postsecondary destination. Students are allocated to one of three general sequences: college preparatory, college interest, or vocational. Vocational students usually take Math I - IV and Applied Mathematics to meet the graduation requirement and select from two electives which they share with college interest students. College interest students most often take a two-year sequence of Algebra, after which they can enroll in electives or the geometry courses of the college prep program. The usual college prep program extends for at least three years, and includes the traditional math sequence of algebra, geometry, and trigonometry, followed by a choice of three electives.

Figure 3.1
MAP OF ENGLISH CURRICULUM IN PATHS SCHOOL 5

Grade	Basic English		"Y" English	"X" English	GATE
	Reading level: Nonreader - 4.5 4.6 - 5.5	Reading level: 5.6 - 6.9	Reading level: 7.0 - 8.9	Reading Level: 9.0 and above	
9	Remedial Reading	English 1-6 T	English Skills 1-2 Y (2 semesters)	Composition/Lit. 1-2X (2 semesters)	Composition/Lit. 1-2 GATE (2 semesters)
10	Remedial Reading	English 1-6 T	English Skills 3-4 Y (2 semesters)	Composition/Lit 3-4X (2 semesters)	Composition/Lit 3-4 GATE (2 semesters)
11 and 12	Remedial Reading	English 1-6 T Writing Work- shop/Lab	<u>Electives (below)</u> American Literature Y Biography/Autobiography Y Developmental Reading Y English Skills Review 5-8* English 1-6 Y Individualized Instruc- tion Y Lit. of American Minor- ities Y Mass Media Y Mystery & Detective Stories Y Mythology Y Science Fiction Y Senior English Y Song Lyrics & Poetry Y Sports Literature Y Techniques/Group Discus- sion Y Vocabulary and Spelling Y Vocational English Y Writing Workshop/Lab * Your Language Y *Course recommended for those not passing English competency tests	<u>Electives (below)</u> Advanced Composition X American Literature X Beginning Journalism X Beginning Speech Biography/Autobiog- raphy X Creative Writing Developmental Reading Drama as Literature X English for College x English Literature X Intermediate Comp. X Lit. of American Minorities X Lit. of the American West X Mass Media X Modern American Lit Y Mystery and Detective Stories X Novel X Poetry and Literary Criticism X Science Fiction X Shakespeare X Short Story X Technical Writing X Utopian Literature X Women in Literature X World Literature X Adv. Journ. 3-8--No English credit Adv. Speech--No English credit	Advanced Comp GATE English Lit. GATE <u>Grade 12</u> Advanced Placement (optional) Electives from X Program

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College prep Course Paths. College prep programs typically included sequences such as:

Algebra 1 —> Geometry

Algebra 1 —> Basic Geometry —> Algebra 2

Algebra 1 —> 2-Year Algebra (conclusion) —> Geometry

2-Year Algebra (intro & conclusion) —> Geometry

The sequence of Algebra 1 and Geometry represented the shortest route to obtaining the content represented in these sequences. Students who needed to could complete a college prep sequence in three years instead of two; however the alternative courses may not fulfill UC requirements. Of the 100 students completing the sequence, 70 followed the Algebra 1-Geometry sequence, and 30 followed other paths. Forty-three percent of the students who completed the college prep sequence took at least one more math course and 27 percent took two additional years of math.

Basic Course Paths. Basic math programs entailed the 2-year algebra sequence. Students can enter the basic track from General Math 1 and Algebra 1. Thus, typical general programs include courses such as:

2-Year Algebra (Intro) —> 2-Year Algebra (conclusion)

Algebra 1 —> 2-Year Algebra (conclusion)

General Math 1 —> 2-Year Algebra (intro & conclusion)

Of the 68 students completing a basic sequence, ten (15 percent) began in one of the other two tracks. Ten students completed an additional year of math beyond the basic sequences described above.

Remedial Course Paths. Although only one year of math is required, students in the remedial track typically take two years of coursework. The typical sequences include programs such as:

General Math 1 —> General Math 2

2-Year Algebra (introduction) —> General Math 2

Most students beginning in this track continue in it for two years. Of the 97 students completing the minimum one year program, ten percent repeat General Math 1 during their second year. Very few (less than 10) students moved from the general track to the remedial sequence.

Table 3.3 displays the distribution of students who entered in 1977 and graduated in 1981, indicating the ways in which they completed courses in various tracks. Most students (82 percent) completed a sequence of courses that corresponds to the math department's recommended sequences, and most of these students took more than the graduation requirement of ten units. However, 18 percent fulfilled the required 10 units of math, but did not complete a sequence of courses within any track. They began one sequence and either failed to follow this path to completion or switched without completing any path. For example, a student could take one semester of a remedial course, switch to the basic track, then stop taking math, or take only one year of the two-year sequence in the basic or college prep tracks. Such students fulfilled graduation requirements, but failed to pursue a sequence to completion.

Table 3.3
PROPORTION OF GRADUATES TAKING VARIOUS MATH SEQUENCES

Recommended sequence	Track	Percent of students	Percent of students completing sequence
1 year remedial math, which fulfills graduation requirement of 10 math units	Remedial	32	100
A 2-year algebra sequence	Basic	31	65
At least 2 years, including algebra and geometry	College prep	37	81
	Total	100	82

The curricula that schools plan for various cohorts of students can be seen through these maps to structure programs of study over the secondary school years. Students do not take random arrays of academic courses; rather they take sequences designed by the teachers within each department. Movement between sequences follows the department planning for course sequences, as this example shows. How students are placed and continue in various sequences or tracks is the topic of the next chapter.

At School 8, the math department differentiates the curriculum into three tracks, with various alternate routes to completing a math sequence. There are numerous paths which individual students can follow through the sequences, indicating the complexity of tracking structures. Figure 3.4 displays the math tracks as organized by the department: remedial, general, and college prep. The arrows indicate the direction of possible movement. General Math 1, Introduction to 2-year Algebra, and Algebra 1 are the common courses of upward and downward mobility across tracks.

Figure 3.4
MAP OF MATH CURRICULUM IN PATHS SCHOOL 8

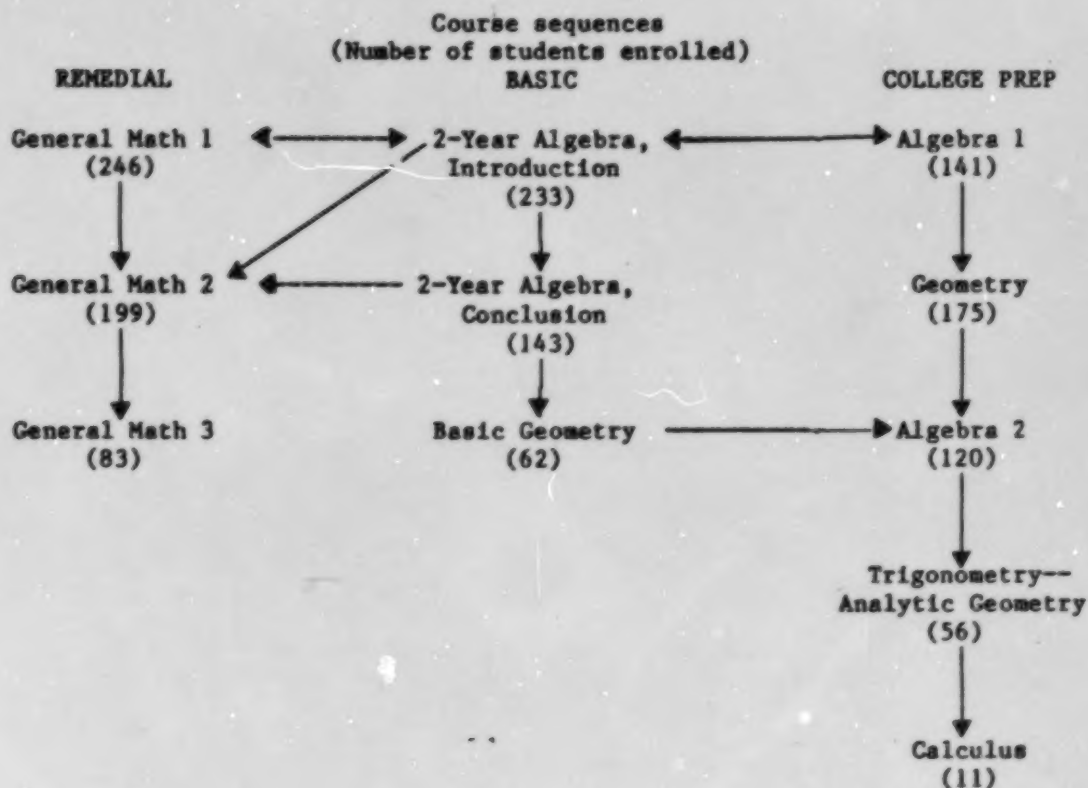
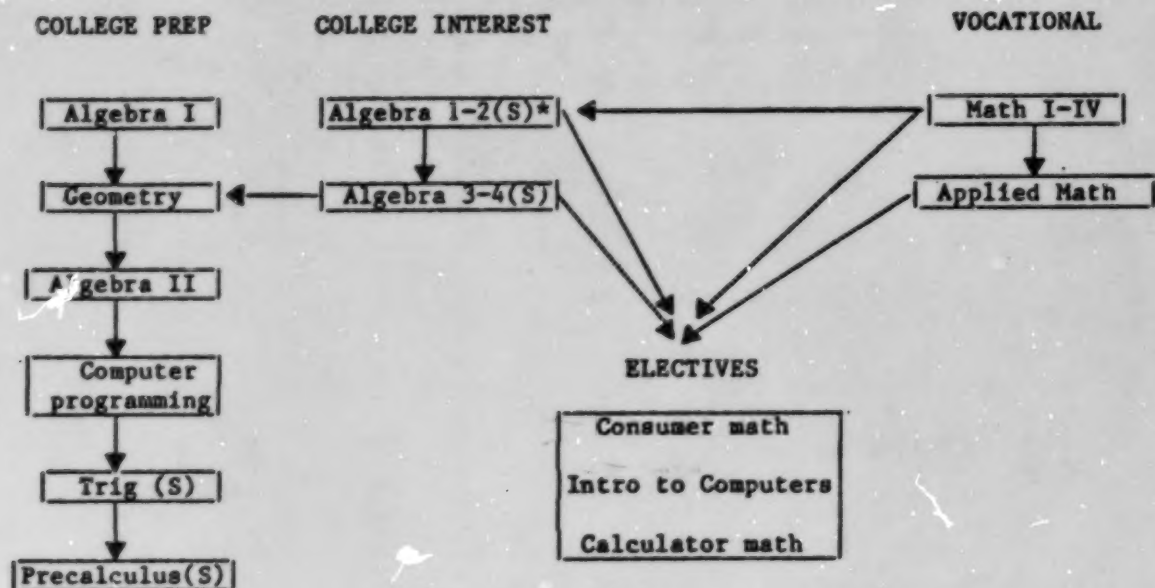


Figure 3.2
MAP OF MATH CURRICULUM IN PATHS SCHOOL 7



(S) Semester course

* The Algebra 1-4(s) program is a two-year algebra I course especially designed for those students who would be unable to maintain the pace of a standard one-year course.

A Science Department Curriculum Map. Figure 3.3 displays science curriculum at School 13 where 10 units are required for graduation. Placement depends upon past teacher recommendations, grades, and success on a minimum skills test. Students who read at or below a sixth-grade level and who are generally poor in math choose between life or physical science courses. They are likely to graduate having completed only one of the two. Another group of students, those who have low grades and are weak in math, can select from four courses depending upon their reading level during their sophomore, junior, or senior year. Although students in this category have more choices of science courses than students reading below grade level, they reportedly do not often choose more than the minimum required science units.

Until students are reading at the tenth-grade level or have above-average grades, regardless of their actual year of high school, they do not have access to biology, chemistry, and physics. At this level, students have available seven science courses to select from, those that form the

traditional college prep sequence. Once embarked on this sequence, the students are reported to take more than the minimum required units because they are concerned about meeting college entrance requirements.

Figure 3.3

RL = Reading grade level

MAP OF SCIENCE CURRICULUM IN PATHS SCHOOL 13

Category of student	Freshman year	Sophomore year	Junior year	Senior year	Minimum number of years
Above average student Grades: B and above	Earth Sci (RL-9) Biology (RL-10)	Earth Sci, Biology, Chemistry, Physics (RL-10)	Chemistry, Physics, Adv Biology (RL-10)	Chemistry, Physics, Adv Biology (RL-10)	3
Average student & above Grades: C to B Fair to good math background		Earth Sci, Biology, Environ Phy Physics (RL-10)	Chemistry, Biology, Physics, (RL-10) Env Phys (RL-9)	Physics, Adv Biology, Chemistry (RL-10)	3
Average student & below Grades: C to B Generally weak in math		Life or Phys Sci (RL-6) Earth Sci (RL-9)	Life or Phy Sci (RL-6) Earth Sci (RL-9) Biology (RL-10) Env Phy (RL-9)	Earth Sci (RL-9) Biology (RL-10) Env Phys (RL = 9)	2
Students generally poor in math and has reading problems		Life or Phys Sci (RL-6)	Life or Phys Sci (RL-6)		1
Above average student who will take only one science course		Earth or Biology, Environ Phys, Chemistry, Physics (RL-10)	Earth or Biology, Env Phys, Chemistry, Physics (RL-10)		1

Student Curricular Paths in a Math Department

Schools indicate the sequences of courses planned for students with curriculum maps. In order to determine whether students actually follow the planned course sequences, student transcripts were analyzed from School 8. The course paths taken by students through the math curriculum were found to follow the sequences described in the curricular map. This indicates that the implementation in this department matches the curriculum planning; that is, students actually take what the department plans.

Chapter 4

STUDENT PLACEMENT AND MONITORING

Chapter Summary

Counselors, teachers, and students play important roles in determining the courses which make up each individual student's high school program of study. Counselors provide information about courses and requirements for graduation or college admission. The counselor's primary role is that of initial sorter, placing students in tracks or sequences of courses. Teachers serve as the ongoing gatekeepers, deciding which students enter, remain in, and complete particular courses and sequences. They establish the criteria for continued sorting of students into particular courses or levels of courses and set standards for completion.

The amount of course and course-level choices actually available to students depends on the tracking system at each school and on the individual student's characteristics. Students' choice of courses, particularly academic courses, is limited by the tracks they choose or to which they are assigned in each subject area. The support for decision making they receive from counselors also depends upon their track. Students in the college prep and lower tracks receive more attention from counselors about the completion of college entrance or graduation requirements. Middle track students who have no attendance or other problems and can graduate were reported to receive less attention from counselors about their choices of courses.

Consistent and valid information about attendance, dropouts, and student progress toward graduation was difficult to obtain in the study schools. The definition of dropout varied greatly, resulting in noncomparable statistics. Following students outside of school, whether dropouts or graduates, was reported to be expensive and difficult. Information about what students did after graduation was not seen as important for curricular planning.

Monitoring students' progress through courses of study turned out to be a major record keeping problem for schools. Few schools consistently check whether students complete the courses planned in their overall program of study, unless the students are in danger of not graduating. This type of monitoring was left to students and parents. Counselors in the Paths schools were responsible for 239 to 540 students, and one school had no counselors. These ratios obviously limit the time available for each student.

Student Placement: Structures and Procedures

The great differences in curriculum paths taken by cohorts of students can be understood through the two features of the tracking system described in Chapter 3.

- Structures . . . Differentiation of curriculum into various courses and sequences (tracks)
- Procedures . . . Processes by which students learn about the possible array of courses, select or are placed in them, and continue in sequence or track

This chapter describes the procedural aspects of tracking found in the study schools. The data about placement processes collected in the Paths schools were accounts by school personnel and documents given to students. These accounts describe the organizational mechanism and support for the student placement process, but do not address the actual choice process by which individual students select their courses.

How is it that a student ends up taking particular courses and course sequences? When asked this question, school personnel typically respond that students make these choices with the assistance of their parents and guidance counselors. However, it is clear that which courses students take over four years of high school is not simply a matter of student choice. A number of constraints operate to limit and predetermine what students can and do take, including the structure of the tracking system.

Curriculum differentiation has been described as the way in which high schools, departments, and teachers organize the content to be taught into appropriate units for cohorts of students. Organizing the curriculum into courses, sequences, and tracks enables schools to provide broadly defined areas of content to students with highly varied entering skills and abilities. Tracking narrows the focus of each course and the range of student achievement levels within a class. It also limits access to students for whom the course or track is appropriate.

The procedural processes of placement and monitoring are managerial functions. As explained in Chapter 3, permanent placement based entirely on ability measures is legally proscribed. Therefore, students must be placed in courses in other ways. The placement processes found in the study schools combined the criteria used for differentiating courses (e.g., achievement scores or prerequisites) with some student choice of particular courses. The processes can be described as:

- The initial placement of entering students
- The ongoing course placement-selection process
- The ways schools monitor students' progress through requirements

Because guidance counselors play a key role in all three processes, the student/counselor ratios in California high schools deserve attention. Even excluding the one study school in which there are no counselors (students are monitored by assistant principals), the ratio varies greatly across schools. In the Paths schools, there were an average of 369 students assigned to each counselor, with a range of 239 to 540.

Initial Placement

Placement of entering high school students in courses and tracks is influenced by the degree of involvement of counselors, parents, and students. Students entering different high schools do not receive the same amount or type of information. The study schools employed diverse counseling approaches, different amounts of encouragement for parent participation, and a range of student/parent input in arriving at a first-year schedule--the initial track placement.

Nearly all of the high schools studied distribute course catalogs. These usually describe courses, course prerequisites, the district's graduation requirements, and entrance requirements for California's higher education systems. About one-third of the Paths schools provide students with sample four-year programs of study. A few outline programs geared toward specific postgraduation educational and vocational goals. For example, in one school's catalog, students interested in agricultural technology careers are presented with one program preparing them for a California State University and another preparing them for a two-year community college.

Counselors in all schools consider the same basic criteria when directing new students toward paths of study. Students are usually placed according to their scores on standardized tests, grades, junior high school teacher recommendations, and career plans. In several Paths schools the first-year schedule is initiated by the counselor, but parents and students may change it. In a few cases the counselor's suggestions seemed to carry more weight, and in one school the counselor actually assigned students to a first-year schedule.

Parents of entering students have varying amounts of contact with school staff. Many counseling staffs invite parents to meetings to disseminate information similar to that given to students. Some mail information to parents regarding school requirements and possible programs of study. Counselors in a few schools ask parents to attend the initial student/counselor conference to discuss the student's plans beyond high school and possible four-year study programs. Paths schools which encourage parent attendance at this initial conference report that the parent attendance rate is high.

Some of the enrollment procedures provided that the parents and students decide upon a first-year schedule. The schedules are usually accepted by the school unless the counselor strongly feels that the student is not prepared for a particular course or that sufficient progress will not be made toward completing graduation requirements.

Ongoing Course Placement

Students continue in particular courses and tracks by registering for courses either once or twice during an academic year. In some schools, students' schedules were determined in the fall for the entire year. Most schools, however, had some type of registration process each semester, usually for the purpose of changing courses or selecting electives. Since many courses were a year in length, second semester registrations were automatic unless students needed to register for half-year classes.

Many schools used sign-up systems referred to as "arena," "scramble," or "milling." For example, in some schools, "arena" scheduling was used for the purpose of having students sign class lists for elective courses. In other schools, students received a list of courses they should take based on pre-

registration preferences or counselor suggestions. Students were then allowed to choose the teachers from whom they would like to take the preassigned courses. Or, this could represent a final opportunity to change the schedule just before or even after courses begin. A number of counselors reported that students' schedules changed or were not finalized well into the first weeks of the term, interrupting classes and losing weeks of instruction.

Counselors' Roles in Ongoing Placement. Counselors at most of the schools relied upon course descriptions prepared by teachers or department heads for their information about specific courses. A few schools assigned individual counselors to particular departments to gain a more detailed understanding of the department's offerings that could be shared with the rest of the counseling staff. In addition, counselors frequently learned about specific courses through contacts with teachers. Thus, the amount and type of information that counselors could provide students depended upon what and how counselors knew about the content of the available courses.

Most schools arranged for routine individual conferences between students and counselors. Some schools attempted to include parents in such meetings, but most did not. The conferences typically focused on graduation requirements yet to be completed, the status of proficiency testing, and postgraduation plans. The formal student/counselor meetings were usually an annual event, but a few schools reported that routine conferences took place prior to each semester. A few schools only scheduled one during the high school career. In this case, students would have them only at the end of the sophomore or beginning of the junior year.

Teachers' Roles in Ongoing Placement. Teachers play a significant role in determining which courses and course sequences students eventually take. They assume the role of gatekeeper and determine which students should be allowed to enter specific courses, especially college preparatory ones. In most Paths schools, counselors depended on teacher recommendations in guiding students toward courses and tracks. Teachers also assessed students' abilities during the first weeks of a term, in some cases by administering formal tests. To remain in a class, students had to meet the course standards, pace, expectations, and work load. Final enrollment in courses is frequently determined after several weeks of coursework, moving students for whom a particular class is either too difficult or too easy. Teachers also directly influenced students' choices by suggesting course sequences to them. Access to advanced courses is frequently obtained by means of prerequisites established by teachers. Thus, teachers provided the fine-tuning of student's schedules.

Student Roles in Ongoing Placement. The importance of student choice in ongoing course selection differs within school by track. Students who fail to pass the proficiency examinations are counseled toward or automatically placed in remedial courses, depending on local school or district policy. Courses for students in upper tracks are largely determined by college entrance requirements. The highest achieving students have fewest choices since academic sequences planned for them fill almost all of the available time.

Students in the general education track who have relatively few difficulties in meeting graduation and proficiency requirements and do not plan to attend a four-year college tend to have the most choices to make concerning their programs. These students are not enrolled in assigned remedial courses and have fewer reasons for being steered toward academic electives. The nature of their study programs is largely a function of personal choice within the offerings available in their tracks.

Monitoring Student Progress

There were four kinds of monitoring processes conducted by the schools:

- The daily presence of students (i.e., attendance and drop-outs)
- Course of study, proficiency, and college entrance requirements
- Courses taken to complete each student's overall plan or blueprint
- Students' postgraduation destinations

Very few schools formally pursued all four kinds of monitoring although many relied upon informal sources of information. In nearly all Paths schools, guidance counselors had primary responsibility for the monitoring.

Attendance and Dropouts. Students need to be present in classes for the opportunity to learn the curriculum planned for them. Schools and districts vary widely in their ability to keep track of students. Some check attendance each period, some each day, and some far less frequently. Estimates of daily attendance range from 72 to 100 percent (excluding excused absences). Estimates of students in attendance but cutting classes ranged from 0 to 10 percent.

All schools reported difficulty in knowing exactly which and how many students are enrolled. Transiency rates limit schools' ability to forecast which students will be in particular classes over the school year, even though total enrollment figures may be relatively stable. One of the Paths schools reported greater than 70 percent student turnover each year. Teacher planning for curriculum is significantly affected by the continual changes of students in each class. In addition, scheduling courses and course sections depends on the number of students projected to enroll in each.

The difficulty of counting and keeping track of students is most sharply apparent in attempts to determine "dropout" rates. Establishing who is a dropout and when a student has dropped out requires the school to find out where students go after they stop attending the school. This frequently entails the counselor contacting the student or family. Usually, schools request records of new students and this signals the previous school that the student has moved and re-entered school rather than dropped out. The counselor must add this information to the student records and decide how to

compile it when an aggregated estimate is desired. The "dropout" rate for Paths schools was reported to be an average of 8.1 percent, with a range of 1 to 35 percent. In one large school, the aggregated "dropout" figure was computed by subtracting the number of graduates in 1981 from the number enrolled as ninth graders in 1977, which yielded a 35 percent decline.

As in the above example, dropouts are often confused with student transiency. Some schools experience 10 to 15 students entering or leaving school each day, a turnover of 1,000 students per semester. Each of these students requires a trail of paperwork and counselor time. Some of these students enter another school right away and request that their transcripts be sent while others may not re-enter school for some time. Schools with large migrant worker populations lose students for several months.

Completion of Requirements. All schools formally monitor their students' completion of requirements. This is a highly routinized, but time-consuming, process in which counselors, assuming the role of clerks, maintain student files by collecting and entering the data for each of the numerous students assigned to them. In a few cases, the clerical task of monitoring proficiency test results fell to the school registrar or an assistant principal. In other schools, student aides or secretaries alleviate some of the clerical responsibilities of counselors, thereby freeing the counselors to spend more time with students. Streamlining cumbersome tasks associated with counseling is dependent on the creativity of each school's administrative and guidance staff. Increasingly, schools are employing computers to keep track of students' progress.

Matching Courses to Plans. Only a few schools formally monitor the match between actual courses students take and their initial program plan. This is often squeezed in with the requirements monitoring, especially for the student who plans to attend college and must meet entrance standards. Generally, this kind of monitoring is relegated to the student and students' families.

Counselors reported that they spend more time with students in the remedial tracks and college preparatory tracks, while students in general education tracks receive less guidance. Counselors are responsible for arranging special programs and tutoring for students who fail proficiency tests or have problems meeting the graduation requirements. At the other extreme are the students planning to attend four-year colleges who demand more time of the counselors to evaluate their courses, offer suggestions for colleges, and provide scholarship information. Students in the general education tracks demand less of the counselors' attention because their postgraduation plans are less clear.

Postsecondary Destinations. Very few schools (only five of the 26 cases) formally collect information about the postgraduation progress of their students. When information is collected, it is in the form of surveys sent to the students' homes, and the response rate is very low. One school conducted phone surveys and called students' homes during the work day. The written or phone surveys were not regular or ongoing. All high schools receive information from the UC and CSU systems describing the academic progress of their students in those systems in comparison to other students. However, this information from colleges was not reported to be used in any thorough or systematic way.

In spite of the importance that counselors place on student career plans in selecting courses, the lack of postgraduate information is not commonly perceived as a problem. This information is considered important for counseling and curriculum planning in only three of the schools which collect it. Even when information is available, it is rarely used. Information about what students actually do after graduation could be used to assess the success of their programs of study and counseling practices supporting student choices.

Chapter 5

COMPARING CURRICULUM STRUCTURES

Chapter Summary

Curricular structure (described in Chapter 3) and student placement processes (described in Chapter 4) interact with particular consequences for different cohorts of students. Although these two components of tracking systems were found to differ across the study schools, the even more striking pattern emerging from the case studies is the consistent curricular effects of the tracking system on students within the same school.

Using three criteria to describe and compare tracks and schools, students in the upper tracks of all schools were found to have available significantly more sequentially planned academic courses. By contrast, courses planned for students in the lower tracks are shorter sequences with lower expectations. Progress to higher order skills and access to courses in other tracks is limited in the lower tracks of most schools.

These differences in academic course structure have a significant effect when compared in terms of available instructional time. Students in upper tracks, simply because more sequential, academic courses are planned for them, are able to accrue as much as two more semesters of coursework in some academic areas than students in lower tracks. Therefore, students who enter high school already well prepared, i.e., in the upper tracks, have more opportunity to increase their academic preparation than students who enter high school less well-prepared, i.e., in the lower tracks.

Criteria for Comparison of Curriculum Structure

The following comparisons of curricular structure in the Paths study schools are limited to the data gathered from interviews about courses, course sequences, and related policies and practices. These comparisons do not include the way in which the curriculum is actually taught by teachers in classrooms across the state. The level of inquiry or unit of analysis here is the semester or year-long course.

The three criteria used to assess and compare curricular structures across tracks and schools were:

- Amount. The amount of coursework within each track or sequence (e.g., number of courses or length of sequence) and the expectations of work covered in each
- Level. The progressive nature of sequences, leading to higher order skills and content (articulation among courses in a sequence with increasing difficulty levels)
- Access. Coordination of courses across tracks and areas to be available to students (articulation of content and prerequisites of all courses)

Two important caveats should be kept in mind. First, this analysis is limited to three academic departments and the major course sequences within these areas. This excludes other important subject areas and so called

"elective" courses. In this usage, "elective" refers to courses which are not part of sequences or which are not taken by most students in a cohort.

Thus, electives can include highly advanced, rigorous courses such as Shakespeare and may be taken in lieu of or in addition to courses planned as a sequence.

Second, this analysis assumes that there is really something sequential about the course sequences as described by school personnel. From curriculum maps, other documents, and the reports of department chairs, there is indication that English 2 is more advanced than English 1. However, the coordination and planning of such courses varies. To some degree, sequences are assumed to represent meaningful relationships among courses at the more micro or daily level of content which have not been studied directly.

For example, when a course entitled English 2 follows English 1, the skills and knowledge learned in English 2 presumably require those learned in English 1. In addition, the two courses together should present to students some essential substance in the area of knowledge called English. If chemistry is a prerequisite for Biology, the work entailed in Biology builds upon the knowledge and skills acquired in Chemistry, creating a sequence which teaches students important components of science. A sequence entitled Remedial Reading I and II suggest that the two courses constitute a progressive accumulation of reading skills. This may, in fact, not be the case.

Comparing Curricular Planning Across Tracks Within a School

In the following comparison of curricular planning across tracks, School 21 is used as an example. It has grades nine through twelve with an enrollment of over 2,000 students: 20 percent black, 20 percent Hispanic, 10 percent Asian and 50 percent Caucasian. There are 96 teachers in 15 departments in the school, 5 administrators, and 5 counselors. The school graduated 90 percent of its seniors in 1981; 3 percent failed course requirements, 1 percent failed proficiency requirements, and 6 percent failed both. Enrollment has dropped from nearly 5,000 students ten years ago, cutting the teaching staff dramatically. The school ranked in the 20th percentile in the state on CAP reading scores, with about equal proportions of students in each achievement quartile (except 30 percent in the bottom quartile).

The interviewers described their site visit as follows:

Most of the information requested had been prepared by the time we arrived at School 21. At that time, we met with the principal, vice-principal for instruction, and head counselor. All of those we talked to seemed knowledgeable and conversant with the information we sought. Most had been at the school for up to 10 years. The most difficult question was that concerning the drop-out rate. Everyone we talked to felt that this number was almost impossible to estimate and very little information about it was available. Other information was easily available, and most of it was collected and tallied as a matter of course. These people are very concerned with their curriculum and, because of their necessary preoccupation with budget cuts and staff and course manipulation, keep close tabs on attendance, teacher/pupil ratios, changes in student body and school characteristics, and so forth.

Tracks: Students Cohort

All respondents at the school agreed that there were four tracks: lower, middle, college prep, and GATE (Gifted and Talented Education) except in science. The researchers conducting the case study reported:

The school offers four tracks: remedial, general, college prep, and gifted, with considerable differences among the courses offered at each level. The lowest levels concentrate on the most elementary skills with materials using the simplest language and ideas. There is some crossover of students in classes at the general and college-prep level courses, particularly English courses. And, to some extent, these courses cover much of the same material. Only the courses at the college prep and gifted levels, however, are acceptable for UC admission. In other fields, the courses are vastly different. College prep and gifted students enroll in the UC acceptable science (Biology, Chemistry, Physics) and math (Algebra 1 and 2, Geometry, Trig/Algebra) sequences, while lower track students study general math and a survey "World Science" course which is divided into a semester of physical science and semester of biological science. These courses are taught at a much more elementary level than at the higher track. The history courses are also different, where the lower track history course is composed of newspaper and magazine material about current events. There is comparatively little crossover of general or remedial students into college-prep courses in science or math.

The course sequences for each track in School 21 are displayed in Table 5.1. The GATE and college prep tracks are combined for simplicity since many courses have the same title but restricted access. The college prep and GATE courses in English, math, and science are designed to extend for four years. Most courses in this track have specific prerequisites in terms of previous courses to be taken and minimum grade of "C" to continue in the sequence.

By contrast, the middle track sequence extends for three years in English and math and one year in science (taken in grade 10 or 11). Most courses here, too, require a minimum grade of C to continue in the sequence. In the lower track, English and math courses are planned for two years and science for one year. (There are only two tracks in science: college prep and middle/lower.) Courses in the lower track have no requirements beyond initial placement criteria.

Table 5.1
CURRICULAR STRUCTURE IN PATHS SCHOOLS 21

COLLEGE PREP TRACK				
SUBJECT	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Math	†Algebra (10)	Geometry (7)	Algebra II (2)	Trig/Advanced algebra (2)
Science	†Physical (?)	Biology (6)	Chemistry (2)	Physics (1)
English	†English IA (5)	English IIA (4)	English IIIA	English IVA (3)

MIDDLE TRACK				
SUBJECT	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Math	†Gen Math IA or >Prep Algebra (3)	*Math IIA (5) or *Career Math (2)	Consumer Math (2)	
Science		World Science (15)		
English	†English IB (8)	English IIB (8)	English IIIB (5)	English IVB (3)

LOWER TRACK				
SUBJECT	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Math	† >Math Fundamentals IB (5) or Basic Math (3)			
Science		World Science (15)		
English	⊙English Fundamentals (5)	Language Experience (3) or English Fundamentals (4)		

KEY:†=Initial placement and test score *=Prerequisite course or grade in a
 >=Access course to next track course
 ⊙=Failed Proficiency Exam (#)=number of sections offered

Amount of Coursework

The length of sequences in each track clearly differs. The differences are greatest across tracks in science and math. College prep students, if they actually take the sequences offered, can take four year sequences in each subject. Middle track students have a possible four year English sequence, three year math, and one year science. Lower track students have a possible four-year English sequence, three years of math, and one-year of science. However, the number of courses in each sequence which students take can be seen in the number of sections indicated at each level. The college math sequence begins with ten class sections, but only two sections of students enroll in trig/advanced algebra. Similarly, six sections of biology are taught, but only one of physics.

Expectations of students vary significantly across tracks, according to interviewers:

Sections of the same course receive the same materials for first nine weeks. Other than this, there is no school policy governing homework. There is, however, a school condition--the lack of enough books and supplies--which has a very profound effect on homework.

According to all school personnel interviewed, students in lower tracks do not return their books at the end of the semester, or even bring them to school during the semester. As a result, lower track students may no longer take their books home, and therefore, in effect, these students have no homework. Instead, reading and assignments are done in class, seriously cutting into instructional time and reducing the amount of material covered during the semester. The chair also complained that these students wouldn't do homework anyway.

Level of Coursework

From the combination of prerequisites and course titles, the college prep track appears to offer progression to higher order skills and content in all three areas. The general track seems to have progression in English and in math (Career Math is an advanced, vocationally oriented course). But, since the science track is truncated, clearly no progression is possible in the general track. The lower track does indicate progression at the very basic skill level, e.g., reading, but not into higher order skills or content.

The interviewers described articulation of courses in School 21 as follows:

QUESTION: Articulation: Do sequences within departments fit together to coherent paths so that, particularly from the student point of view, there would be a sense of purpose in the combination of courses, content, and skills being developed?

RESPONSE: Coherent paths occur only at the college-prep and gifted levels, and then only in English and Math. Physics is scheduled as the senior course apparently because students need two years of math prerequisites, but there is no science prerequisite for any science course. This seems appropriate to the nature of the disciplines, although one might expect that physics would have a chemistry prerequisite.

QUESTION: Sequences: Are courses sequential, i.e., do they have prerequisite skills and knowledge, and are they in some sense cumulative, leading to advanced levels of skill and content? In all areas (general education as well as college prep)?

RESPONSE: College-prep English and math courses are sequential, with previous courses required for enrollment in advanced courses (trig/algebra requires geometry; English 12 requires English 11, etc.). In science, college-prep chemistry and physics courses, by their nature, have only math prerequisites. (Chemistry requires algebra with "B" or better. Physics requires algebra and geometry.) Advanced English courses concentrate on college-prep materials and review of English literature.

General science courses are neither sequential nor cumulative and seem to be in a constant state of change. Chair claims that "no one knows how to teach science to lower track students." General math courses concentrate on arithmetic and applied "consumer math." There are only three years of general math courses, each leading to the next. Lower-track English courses concentrate on fundamentals and have no prerequisites. There are no twelfth-grade, lower-track English courses.

Access to Courses Across Tracks

Initial track placement has a significant effect on access to other courses, but there can be several routes into higher level or more advanced courses. In math, for example, students can begin in lower-track Math Fundamentals IB which provides basic skills. They can progress to General Math IA or Preparatory Algebra and then possibly to advanced courses in the middle sequence. Similarly, middle track students can move from Preparatory Algebra to Algebra, in the college preparatory track. The interviewers stated that the math department had designed an algebra course which covered the usual one-year algebra in three semesters to encourage middle track students to take algebra.

The department offers a variety of Algebra courses: Prep, Algebra, Algebra X or 3-semester Algebra, Algebra 1 and 2 College prep, and Algebra 1 and 2 GATE. . . . 30 percent of the students taking math take some form of beginning or preparatory algebra.

Initial track placement in all departments is made by counselors on the basis of previous grades, test scores, teacher recommendations, and student/parent preference. Ninth-grade students are placed in math courses and given the same work for two weeks in all classes, then adjustments in tracks are made. Students are given the same work in English courses for nine weeks, after which track adjustments can be made.

Science students rarely move after initial placement (i.e., few students move from World Science to Biology or Chemistry). The primary barriers are initial placement and the math prerequisites for the college prep science courses. Thus, few students, except those initially placed in college prep math and science, have access to advanced science courses.

Factors cited as affecting length of sequences, progression of sequences, and access to courses were:

- Low-level skills of entering students (some reading at levels below fifth grade)
- Teachers teaching outside of specialization because of enrollment decline and teacher layoffs
- Lack of pressure or incentives for students to take advanced courses, particularly in lower tracks

Comparing Curricular Structures Across Schools

In the following comparison, Paths schools 2 and 21 are used to illustrate the differences that curriculum planning can make for students across tracks. The curricular structure of sequences in English, math, and science for School 2 is shown in Table 5.2. (The curricular structure in Paths School 21 was displayed previously in Table 5.1.) Common to both schools is the fact that the longest sequences and highest level courses are available to the highest achieving students. Concomitantly, the expectations are greater for the higher tracks.

A significant difference in the curricular planning between schools 2 and 21 is that the students in School 2 have available a full four-year sequence of courses in each track. There are no internal barriers to completing four years of sequential courses as there are in School 21. There are important demographic differences between the two schools described below.

Table 5.2
CURRICULAR STRUCTURE IN PATHS SCHOOL 2

COLLEGE PREP TRACK (50 percent)				
SUBJECT	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Math	†Math 1A (8)	*Math 2A (7)	*Math 3A (5)	*College Calculus (2) or *Computer Math (2)
Science	Physical (14)	Biology	Chemistry	Physics (11)
English	English 1A (6)	*English 2A (6)	*Humanities (2) Amer Classics (3)	*College English (2), World Classics (2), or electives

GENERAL TRACK (40 percent)				
SUBJECT	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Math	†Math 1B (8)	*Math 2B (8)	*Math 3B (2)	*Math 4 (5)
Science	Physical (3)	Biology or Chemistry	Chemistry or Biology	Physics (above)
English	†English 1B (9)	*English 2B (9)	*Amer Lit (7)	

REMEDIAL TRACK (10 percent)				
SUBJECT	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Math	†General Math (3)	Pre-Algebra (3) or Math 1B		
Science	(Same as general)			
English	†Skills 1 (1) or •Reading lab (2)	>Skills 2 (1)	•Skills 3 (1)	

KEY: †=Initial placement and test score *=Prerequisite course or grade in a
 >=Access course to next track course
 •=Failed proficiency examination (#)=Number of sections offered

From Table 5.2 the remedial track in Paths School 2 appears to be short (two years) in English and Math, but each course is intended to prepare students to move into the general track sequence. A student beginning in the remedial track cannot complete the highest level (e.g., senior level) courses in any other track because of time limitations, but progression to courses offering higher order skills and content is possible in each subject. Students choose among "electives" during the last two years of English, but these are clearly designated as more advanced or more general. The math department follows the traditional sequence and reported little movement between the general and college tracks, with each functioning as a complete and fairly separate sequence.

The most significant difference between the two schools is the access to a complete science sequence. School 2 offers access to advanced science courses for students in the lower two tracks. There are several routes to the different chemistry courses, requiring combinations of biology and/or math courses as prerequisites. These prerequisites are available to lower track students. The number of physics sections indicates that many students complete the entire sequence.

Some of the differences in the schools' curricula can be explained by the differences in the student populations. School 2 has a high achieving student population in a fairly stable, wealthy community. Most students go to college and thus the general track is really a lower level college prep track. This significantly reduces the spread of student achievement to be accommodated in the curriculum and the burden on teachers to tailor content (e.g., science) to students with low skills.

Keeping in mind the differences in student populations served, the curricular planning in School 2 demonstrates awareness about higher level academic achievement and access in math and science courses. Although there was reported to be no consensus in the district or school about how the science curriculum should be organized, there is clear planning for length, progression, and access. Similarly, the English curriculum has fluidity, in terms of electives in eleventh and twelfth grades, and progression and articulation are indicated in the planning. The Math tracks are the most discrete because they follow the traditional sequences, but also show concern for maximizing the amount of coursework, the level, and access for all students.

Cumulative Effects of Curricular Differences Across Schools

The combined effects on students of length of class period and of structural differences can be seen in the comparisons of academic instructional time across tracks and schools shown in Table 5.3. Class periods in the study vary from 45 minutes to 55 minutes, with a mean of 51. The total cumulative instructional time was converted to hours.

Table 5.3
Hours of Instructional Time Over Four Years
in Different Tracks at Three Paths Schools

	English	Math	Science	Total	Average per day*
School 19 (45 minute period)					
College Prep	540	540	540	1620	2.25
General	540	270	270	1080	1.50
Lower	540	135	135	810	1.13
School 21 (50 minute period)					
College Prep	600	600	600	1800	2.50
General	600	450	150	1200	1.67
Lower	600	450	150	1200	1.67
School 12 (55 minute period)					
College Prep	660	660	495	1815	2.52
General	495	330	330	1155	1.60
Lower	495	330	330	1155	1.60

* Based on 720 school days over four years.

Comparing the academic areas across tracks demonstrates the differences within schools. In each case, the college prep track has an advantage of nearly one hour per day of academic instruction time--if students actually take the courses planned for them. The data indicate that many students do not complete the longest sequences. The College Prep tracks in schools 12 and 19 differ by 195 hours over four years, or about one quarter hour per day.

The enrollment decreases at each grade level in these sequences, indicating that not all students complete the full sequences of courses. The findings in Chapter 4 indicate that students in the general track receive less attention from counselors regarding course planning than students in other tracks. Incentives for students in the lower tracks to take advanced level academic courses are minimal. Even students in the higher tracks have little incentive to take courses beyond those required for admission to UC or other colleges.

Instructional time (or "time on task") research indicates the importance of time students spend actively engaged in learning tasks. Class length represents the time available to engage students in learning activities. The findings here are actual use teachers make of class time.

This analysis indicates the advantage of academic instructional time that can accrue to students taking the available course sequences in the upper tracks. The effect of differences in length of class period is also significant. There is a greater emphasis on academic sequences for the highest achieving students. Their curriculum expectations are set outside of the school system--by colleges--and are stated in the University of California A-F course requirements. No such expectations are communicated to students at lower achievement levels.

Tracking systems are organizational responses to student diversity. Some students enter high school at low achievement levels, and high schools must plan courses for them. If the planning for each track created sequences of courses which were of comparable length and progressively advanced content, the tracks could be seen as providing different but equally good secondary educations. However, this was not found to be the case.

Several reasons can be proposed to explain the differences in the track contents. College entrance requirements impose structure on the college prep track but no such structure exists for the other tracks. Secondary teachers in academic departments are trained in academic subject matter fields which form the core of the college prep curriculum. Teachers reported that they preferred to teach higher track courses and higher achieving students. They frequently reported not knowing how to teach or plan courses for general and lower track students, particularly in math and science. Textbooks and materials for students reading below grade level are less available than those at grade level. Transiency and absenteeism are greater in general and lower tracks, limiting the progressive sequencing possible in curricular planning and instruction.

In a few of the study schools, the general and lower tracks were planned with long sequences of academic courses, usually in conjunction with business or agriculture courses. The tracks and courses in these schools clearly reflected local community characteristics and needs. For example, one school had an extensive program of business and work experience courses tied to English and math (but not science) sequences in the general track. This type of planning

results in tracks which are responsive to student differences and also provide amounts and increasingly difficult levels of coursework comparable to that in the college prep track.

If public comprehensive high schools are to maximize academic achievement of all students, curricular planning should be improved at the department and school levels for the general and lower tracks.

APPENDIX A

PATHS THROUGH HIGH SCHOOL: DATA COLLECTED

Section I: Managerial Information- Descriptive Data on Schools

This section is intended to provide comparative data on the important demographic and organizational features of the schools; to assist interviewers in becoming acquainted with each school; and to assess the managerial access to and use of information for decision making.

1. enrollment by grade level
2. grade level structure
3. ethnic distribution
4. English proficiency percentages
5. special funding (special education, school improvement, Title I, etc.)
6. attendance- daily excused and unexcused absences, class cuts
7. graduation rates- nongraduate breakdown by course requirements and proficiency failures
8. proficiency testing results for classes of 1981-1985
9. students taking the CHSPE
10. dropout rate
11. # teachers (FTE)
12. pupil/teacher ratio
13. class size- high, low, average
14. minutes per class period
15. class periods taken by students (average, minimum, maximum)
16. # administrators (FTE)
17. administrator/staff ratio
18. # counselors
19. student counselor ratio
20. departments in school
21. enrollment trends over past 10 years
22. characteristics of student population (mobility, aspirations, socioeconomic status, etc.)
23. community from which students are drawn
24. administrative and counselor functions
25. yearly and daily class schedules
26. school organization if not departmentalized
27. interviewer assessment of availability, accuracy, interest in and use of information for managing school

Section II: Graduation Requirements

Graduation requirements vary across California school districts because the state education code specifically assigns setting these requirements to local school boards. No statewide data are available about the graduation requirements, nor are there uniform ways of enumerating or defining course credits. The task in this section is to describe in detail the requirements so that we can develop ways to compare them across schools. Several different formats were provided.

1. courses required for graduation by subject area

2. specificity of course requirements by track
3. definition of unit used for course credit
4. changes in requirements over 20 years in total units and specificity of courses required
5. perceptions of causes for changes over time

Section III: Post Graduation Data

The purpose of this section is to find out if high schools know what their students do after they graduate and, if so, what use they make of this information.

1. sources and information available about student plans or actual destinations
2. proportions of students attending colleges (UC and others) and entering jobs
3. length of time students are followed
4. changes in student destinations over time
5. use of information about student destinations in curriculum planning and counseling

Section IV: Curriculum Policy and Management

This section is concerned with the school level policies and practices regarding curriculum management. We are most interested in those which would affect the quality and content of courses.

1. descriptions of school policies and practices for determining: (including level of decision making and information used for decisions)
 - a. which courses are offered
 - b. determination of course content
 - c. teacher assignment and qualifications for courses taught
 - d. course enrollment (grouping, laning, tracking), student placement
 - e. course articulation (sequence of content and skills)
 - f. monitoring student progress in proficiencies and graduation requirements
 - g. standards, grading
 - h. assignments, student work
2. external factors affecting curriculum, instruction, and curricular organization (e.g. declining enrollment) and specific policy changes resulting
3. effects of proficiency assessment
4. policies adopted to cope with factors affecting curriculum
5. major focus of managerial attention in school
6. interviewer assessment of external factors affecting curriculum

Section V: Curriculum Differentiation

This section begins to address what can broadly be called the problem of the comprehensive high school. How does a school

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provide a socially agreed upon body of knowledge and skills to students with varied entry characteristics and goals? The usual organizational responses to student differences are curricular and instructional differentiation through grouping, use of different materials or content for different groups of students; and varying instructional styles. This section specifically addresses curricular differentiation, although it is not strictly possible to separate them.

Prior to 1970, students were frequently tracked using aptitude tests measures into various course sequences which usually resulted in segregation of ethnic and social class groups. Following pressure for equity and desegregation as well as concern about bias in aptitude tests, the state proscribed such rigid tracking. However, grouping for instructional purposes based on other criteria is still a feature of California schools. The task here is to describe the ways in which schools have differentiated the curriculum to deal with conflicting pressures for equity of access and uniform standards.

1. number of tracks, lanes, streams, sequences, or paths
2. for each track or path:
 - a. name or description of path or destination (e.g. college prep)
 - b. percent of students in each path
 - c. typical course sequences in English, math, science and others
3. sequential characteristics of paths and courses
4. articulation within departments of course paths
5. remedial course outcomes (advanced level coursework)
6. course sequencing in elective systems and coherence in untracked systems
7. course comparability across tracks
8. basis for grouping (or not grouping)
9. comparison across respondents of path descriptions
10. changes in paths over time
11. interviewer assessment of descriptions of tracking system obtained from various respondents compared with descriptive materials available
12. interviewer assessment of effects of tracking system on equity, comprehensive and coherent curriculum provided, and standards attained by students

Section VI: Department Summaries

The data in this section are intended to describe the relative proportion of teachers, courses, and students in various departments across schools.

1. subject areas represented
2. FTE's
3. class size (average, large, small)
4. number of course titles offered
5. total course sections
6. total students enrolled
7. types of instructional groupings used
 - a. whole class or large group instruction
 - b. small groups or tutorials
 - c. labs or independent study
 - d. others described

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Section VII: Detailed Descriptions of English, Math and Science Departments

In this section, we begin to gather detailed information about the actual operating policies and practices at the department and individual class or teacher level. Many questions are repeated from the school level policy section, and the consistency of responses will be analyzed. The three departments selected represent the major content areas of current public interest.

1. content areas covered
2. organizational structure
 - a. number of personnel, titles and roles
 - b. frequency and type of meetings
 - c. closeness of work relationships, communication
 - d. specific vehicles and arrangements promoting curricular coherence and quality (e.g. inservice, interdepartmental coordination of proficiencies or basic skills instruction)
3. proficiency assessment instruction and remediation
4. department approach to providing advanced level coursework and encouraging students to take advanced courses
5. policies and procedures, decision processes and information used in decisions about
 - a. which courses are offered
 - b. course content
 - c. teacher assignment and qualifications for courses taught
 - d. student assignment or placement in courses
 - e. articulation and coordination among courses
 - f. courses designated as meeting UC a-f requirements
 - g. texts, materials used
 - h. difficulty and pace of course
 - i. grading and standards
 - j. number, timing and length of reading, writing and homework assignments
6. changes in courses offered over past 20 years
7. rigor of course content
8. important curricular issues
9. interviewer assessment of department regarding getting students skills and cumulative knowledge
10. courses and sequences taken by different groups of students giving prerequisites, level, # sections and # students enrolled

VIII: Student Access to the Curriculum

This section is intended to determine how the organizational structure of the school and the policies described earlier affect actual student progress through the course of study. The questions begin to address the student perspective on paths through high school.

1. Process by which students are placed in courses
 - a. what information is provided to students and parents

- b. when information is provided about requirements and alternative course paths
 - c. how information is presented and disseminated
 - d. who presents or provides it
 - e. criteria used for counseling students into particular courses or sequences
 - f. actual procedures for enrollment
- 2. counselor knowledge about courses, requirements, and students
- 3. monitoring of student progress regarding
 - a. proficiency requirements
 - b. graduation requirements
 - c. courses appropriate to goals
- 4. student mobility within tracks or paths
 - a. access to college prep courses
 - b. movement out of remedial, bilingual, ESL
- 5. placement options (alternative programs, continuation school)
- 6. interviewer assessment of student placement procedures and impact on students
- 7. effectiveness of tracking system for accomplishing avowed purposes
- 8. permeability or flexibility of tracks
- 9. barriers to students taking rigorous, coherent sequences of courses

IX: Future Data Collection Options

The purpose of this section is to determine which schools might be good candidates for follow-up investigations about the effects of tracking on mobility within course paths. The eventual products of this extended inquiry might include student interviews and transcript analysis.

- 1. identification of students
 - a. not expected to graduate but graduating
 - b. switching into college prep courses
 - c. " " out of " " "
 - d. characteristics of those switching
- 2. access to students and transcripts

X. Interviewer Assessment of School Management and Effectiveness

The final section asks data collectors to reflect on the findings and their experience of the school in an open-ended way, using their own expertise and judgment about the issues being addressed. Specifically, they are asked to assess:

- 1. managerial attention to curricular issues and policies
- 2. specific policies or practices and the results
- 3. the appropriateness of the questions suggested and response format provided for each particular setting

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APPENDIX B

STUDENT A: PROGRAM OF STUDY

Grade Nine (two semesters with 60 units)

2 year Algebra Intro	10 units	Math
English 1-2	10	English
<u>Cultural Awareness,</u> state requirement	10	Social studies
Typing 1, 2	10	Business
Homemaking 1	10	Home economics
Freshman Physical Education	10	Physical education

Grade Ten (two semesters with 57.5 units)

Language Skills	10	English
<u>General Biology,</u> <u>Intro to Life Science</u>	7.5	Science
Clothing 2	10	Home economics
Beginning Restaurant Management	20	Home economics
Sophomore Physical Education	10	Physical education

Grade Eleven (two semesters with 62.5 units)

Language Skills	10	English
Basic U.S. History	7.5	Social studies
<u>Intro Life Sciences</u>	2.5	Science
Advanced Foods	5	Home economics
Exploring Childhood	2.5	Home economics
Beginning Arts and Crafts	5	Art
Advanced Glee	10	Music
Cafeteria Aide	10	Work experience
Junior Physical Education	10	Physical education

Grade Twelve (two semesters with 50 units)

Basic U.S. History, California History	5	Social studies
<u>Basic Civics</u>	7.5	Social studies
Food for Singles	5	Home economics
Advanced Glee	7.5	Music
Beginning Piano	2.5	Music
Senior Physical Education	7.5	Physical education
Teacher Aide	7.5	Work experience
Cafeteria Aide	7.5	Work experience

Total units completed: 230 units

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STUDENT C: PROGRAM OF STUDY

Grade Nine (two semesters with 60 units)

Algebra 1	10 units	Math
English 1-2	10	English
State requirements, Cultural Awareness	10	Social studies
Spanish 1	10	Foreign languages
Symphony Band, Concert Band	10	Music
Physical Education Band	5	Physical education
Freshman Physical Education	5	Physical education

Grade Ten (two semesters with 60 units)

Geometry	10	Math
Children's Literature, American Literature	10	English
College Preparatory Biology	10	Science
Spanish 2	10	Foreign languages
Typing 1, 2	10	Business
Sophomore Physical Education	10	Physical education

Grade Eleven (two semesters with 60 units)

Algebra 2	10	Math
English Literature, Advanced Grammar	10	English
Chemistry	10	Science
U.S. History	10	Social studies
Spanish 3	10	Foreign languages
Pep Physical Education	10	Physical education

Grade Twelve (two semesters with 55 units)

Ind Reading, College Writing	10	English
Civics, California History	10	Social studies
Shakespeare	5	English
Psychology	5	Social studies
Band	5	Music
Physical Education Band, Pep Physical Education	10	Physical education
Teacher's Aide	10	Work experience

Total units completed: 235 units

STUDENT B: PROGRAM OF STUDY

Grade Nine (two semesters with 57.5 units)

Algebra I	10 units	Math
English 1, 2	10	English
Cultural Awareness, state requirement	10	Social studies
Mechanical Drawing I	10	Industrial arts
Freshman Physical Education	7.5	Physical education
Natural Resources: Wildlife Management	10	Agriculture

Grade Ten (two semesters with 60 units)

Basic Geometry	10	Math
Short Story, Creative Writing	10	English
Natural Resources: Forestry Management	10	Agriculture
Typing 1,2	10	Business
Auto Mechanics 1	10	Industrial arts
Sophomore Physical Education	10	Physical education

Grade Eleven (two semesters with 57.5 units)

Math Today	2.5	Math
American Literature, Advanced Grammar	10	English
Agricultural Business, Feeds and Feeding	10	Agriculture
U.S. History	5	Social studies
Junior Physical Education	10	Physical education
Work Experience	20	Work experience

Grade Twelve (two semesters with 60 units)

California History	5	Social studies
Civics	5	Social studies
Agricultural Welding, Farm Equipment Maint.	15	Agriculture
Psychology	5	Social studies
Senior Physical Education, Coed Physical Education	10	Physical education
Work Experience	20	Work experience

Total units completed: 235 units